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OWNED AND PUBLISHED BY THE MASSACHUSETTS MEDICAL SOCIETY

Volume 204 Number 11 — Domestic $6 per Annum, 25c per Copy; Canada $7.04, Foreign $7.56 — MARCH 12, 1931 — Published Weekly in Boston at 165 Newbury Street

CONTENTS

A Program for the Control of Crime in the State of Massachusetts. *Albert Warren Stearns*..... 529

Asepsis: A Possible Interference with the Physiology of Repair. *Herbert L. Johnson*..... 535

Endoscopy and Its Indications. *A. D. Rood*..... 538

The Carrier of Tubercle Bacilli. *Cleaveland Floyd* and *H. Allan Novack*..... 543

Bilirubin Liver Function Test. I. Modification of the Method. *I. R. Jankelson* and *S. L. Gargill*..... 547

Intracranial Aneurysm, Report of a Case. *Richard G. Hahn*..... 549

Comparative Results of Two Albumin Tests. *Roland A. Behrman*..... 551

MEDICAL PROGRESS

Report of Progress in Orthopaedic Surgery. *William A. Rogers* and *Edwin F. Cave*..... 553

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Case 17111 — Edema of the Feet and Ankles. *Richard C. Cabot* and *Tracy B. Mallory*. Case 17112 — Three Cases Illustrating the Diagnosis and Treatment of Cases of Retarded Development. *Fritz B. Talbot*..... 560

EDITORIALS

An Analysis of the Responsibilities of Society in Dealing with the Criminal..... 567

The Protection of Women in Industry..... 567

The Importance of Birth Registration..... 568

This Week's Issue..... 568

(*Contents continued on next page*)

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CONTENTS

(Continued)

THE MASSACHUSETTS MEDICAL SOCIETY
Have Your Dues for This Year Been Paid?..... 569

THE BOSTON MEDICAL LIBRARY
Hippocrates. 458-349 B.C. 569

BOOK REVIEWS
Ante-Natal Care. W. F. T. Haultain and E. Chalmers Fahmy..... 579
Annals of the Pickett-Thomson Research Laboratory—Vol. VI—The Rôle of the Streptococci in Scarlet Fever. (The Pathogenic Streptococci.) 582
The Antiquity of Hindu Medicine and Civilisation. Chowry Muthu..... 580
Chronic Arthritis and Rheumatoid Affections with Recovery Records. Bernard Langdon Wyatt and others..... 582
Études Neurologiques. Georges Guillain and Th. Alajouanine 580
The Factor of Infection in the Rheumatic State. Alvin F. Coburn..... 581
The Guidance of Mental Growth in Infant and Child. Arnold Gesell..... 580
L'Hydrotherapie Medicale. R. Dubois De Saujon... 580
Medical and Surgical Reports of the Episcopal Hospital 581
Modern Surgery. John Chalmers DaCosta..... 582
Physics of Radiology. J. L. Weatherwax..... 579
The Practical Medicine Series—General Medicine... 581
Practical Radiation Therapy. Ira I. Kaplan and Carl B. Braestrup..... 580
A Primer for Diabetic Patients. Russell M. Wilder. 581
Thomas Say, Early American Naturalist. Harry B. Weiss and Grace M. Ziegler..... 581

BOOKS RECEIVED FOR REVIEW..... 582

CORRESPONDENCE
An Old Advertisement Found in the City Museum of New Orleans. Lucy M. Miller..... 574
Prohibition at Its Worst. Wm. Pearce Coues..... 574

MISCELLANY
Comparison of Disease Incidence in Connecticut with 1930 and Seven Year Average Month Ending March 7, 1931..... 573
How Insurance Affects German Dentists..... 572
Maternity Cases and Nursing Care..... 571
Mortality Rates..... 572
Panoramic View of the Woman's Auxiliary to the A. M. A. 2. North Central States. Mrs. James Blake 559

NEWS ITEM..... 574

NOTICES 574

RECENT DEATH..... 574

REPORTS AND NOTICES OF MEETINGS..... 575

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES 578

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The New England
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VOLUME 204 MARCH 12, 1931 NUMBER 11

A PROGRAM FOR THE CONTROL OF CRIME IN THE STATE OF MASSACHUSETTS*

BY ALBERT WARREN STEARNS, M.D.†

IN almost every field of individual endeavor we find a theoretical background, more or less satisfactory, and practice trying to keep up with theory. In the care of the criminal I believe the reverse to be true. For at least a hundred years we have had developed very elaborate therapeutic programs, based upon very meager theory. I believe that before the care of the criminal can progress to a point which all of us wish it to reach, we must all agree upon certain theoretical considerations. So I confess, or better, plead guilty to an accusation which has sometimes been embarrassing, that I am a theorist and that my interest in the control of the criminal is to quite an extent that of a theorist. I hope that practical men and practical procedures can be developed later, but at the present time I believe that the chief problem of scientific men is to agree upon the general theoretical aspects of what we are trying to do.

In the first place, crime has been put off by itself, segregated from the main body of social disorder. The criminal is spoken of as if he were a specific problem quite apart from the ordinary ills of society. So one of the first things which it is going to be necessary for us to accomplish is to link him up with the general problems of society and to tie up closely the organizations which have to do with the criminal with the other movements which have to do with human welfare.

I wish to run over very briefly an outline which has to do with what one might call the natural history of the criminal. First, as regards human motives themselves—in the last few years the tendency has been, especially among psychiatrists, to elaborate human motives. Nobody knows how many instincts we have at the present time, compared with relatively few not many years ago. We are using such terms more or less indiscriminately. Scientific terms have lost incisiveness because they are used rather loosely. It seems to me that we must get over this tendency; that we have been through a stage of elaboration and must now begin to simplify our terminology. Especially in the field of conduct disorder, I believe we must get back to certain basic motives which are permanent. In so far as I can see in reading the Old Testament, there were just as many motives then as now. New words do not express new ideas and often confuse our concept as to old ones.

Darwin made a great contribution in teaching us the evolution or rise of man. This was to quite an extent a physical demonstration. He taught us that the body of man had evolved from certain lower states, and showed us the gradual development of human beings from very primitive to very complex organisms. More lately we have studied the evolution of the mind and here again have gone from the simple to the complex. I believe we must study more closely the evolution of cultures, as this perhaps has a most important contribution to make in the theoretical consideration of criminals.

When we study primitive man and analyze his motives, of course we find but very few. But after all, he has as many as the most civilized individuals, though perhaps he does not express them with as much subtlety. After all, a baby born in Boston cries when he is hungry, smiles when he is happy, has two hands, two ears and a nose. The same is true of the infant in the jungle. They are very much alike physically and mentally. Their differences are cultural rather than biological. A few years ago it was customary to laugh at the man who worshipped a totem pole or a mud Buddha. Now we recognize these as counterparts of our most elaborate religious expression.

During the last generation a number of disciplines have been developed which assist in understanding the problem of human conduct. Certain of these have been studying the life of animals. Here they find, in so far as emotional expression is concerned, the counterpart of our own motivations. When we sneer, something which we cannot do voluntarily, we but raise the corners of our mouth as the wolf did when showing his teeth in preparation for a fight When the child cries and buries its eyeballs in the head, it isn't simply crying itself, it is imitating its ancestors who sought to escape the claws of adversaries. So we have this common heritage with the animal kingdom in so far as emotional expression is concerned.

In the study of primitive people, the social anthropologists have found the origins of a great many of our social customs. Much that we do is merely a survival of very remote motivations. When we go to the beach and our children pick up pebbles and spit on them before they throw

*Read before the Massachusetts Psychiatric Society, October 24, 1930.

†Stearns — Commissioner of Correction for Massachusetts. For record and address of author see "This Week's Issue", page 568.

them into the water, we ordinarily regard this as a child's trick and think nothing of it, and yet perhaps thousands of years ago our ancestors, who thought that there was magic in sputum, are responsible for our child's conduct today.

Take such important things as the organic appetites of sex and food, and again we find that our conduct is conditioned oftentimes by very remote stimulae. The objects of these appetites are not as specific as we had supposed. So we are learning a great deal about ourselves by the study of primitive people. A few years ago nearly everyone believed the theory of total depravity. The child psychologists have paraphrased the terminology of Calvin, and we now look upon a child as instinctively selfish or savage. Nearly everything that he does naturally must be conditioned to meet the exigencies of a socialized existence. His instinct is to take his food in his hand, yet we insist that he use the much less effective knife and fork. He must not do that which nature meant him to do and, spent perhaps millions of years of developing a good tool for him to use. He must do what custom dictates. In the study of the child we have learned a great deal which helps us in understanding social problems.

Lastly, in the study of the insane, feebleminded and the mentally ill, we occasionally get a glimpse behind the scenes and see what adult conduct would be without continual inhibitions and conditioned reflexes. The hypomaniac, for instance, acts as we would act were it not for certain brakes upon our conduct.

So, gradually the data accumulating in these various conceptions are coalescing. We are, perhaps, getting a deterministic attitude toward the conduct of human beings. The conduct of an adult human being represents the particular reaction of the particular individual to the particular experiences of his life. This much we are gradually learning: that there are certain selfish instincts in every child born and that these must be modified to meet the requirements of the particular culture in which he is to live. If he is born in the South Sea Islands, he must learn to eat raw flesh and throw a spear. If he is born in Boston, he must learn to conform and pronounce his a's broadly as in "exaample".

Now among the many different stresses which tend to modify human conduct, the tendency to conform is perhaps the most important. We have an abhorrence of anything that is different. There are some 28 varieties of warblers that nest in my trees at one or another season of the year. It takes an expert to tell them apart, and yet they practically never mate except with their own variety. So it is with us; if we are Protestants, we question the character of Catholics; if we are Jews, we look askance at the Gentile; if we are born in the country, we pity the man of the city. And so on. With conformity as one of the central elements in life, we naturally and instinctively have an abhorrence for a human being whose conduct is different from that of his associates. We instinctively delight in the approbation of our associates and flee before their scorn. Whether it is speaking here tonight before you, or in going to church, or whatnot, we are, to a certain extent, on a stage and our one great desire is to conform to the desire of our associates. Whatever we do in conformity is right; that which does not conform is wrong. If I had come here tonight to speak to you with no tie, I might as well have led a giraffe into the room! You would certainly have sent me to the Boston Psychopathic Hospital. Perhaps we cannot exaggerate the social importance of this conforming propensity and yet a great deal of it is unnatural in terms of our instincts. It is so powerful as to demonstrate in most of us the very virile desire to have our own way, and so our conduct today is the resultant in the conflict between instinctive selfish desire and the conforming tendency.

It is not surprising that there are those who do not obey the rules, and who refuse to play upon the team. There are four general categories of non-conformists who constitute the criminal class. The first of these categories I shall touch upon but briefly. Most of our transgressions but make comrades for us. For instance, if we get arrested for spitting in unauthorized places or for parking on the wrong side of the street, we join that great comradeship of others who do the same.

Next, come the sex offenders. Civilization has put very narrow limits upon the operation of this most fundamental motivation. It is not surprising that many should err.

Third, come the murderers, who have a very dramatic place in literature. They always get on the front page of our daily press. They have been outlawed to a greater extent than most of our other problems.

Lastly, the thieves, those complex social problems who have merely seen something which they wished to have and, in performing an act of nature, have taken it.

Again, we might divide our social problems into the sick, the poor and the bad. These have traditionally been handled as if they were entirely distinct, but you all know how tremendously they overlap and what a tremendous common factor runs through them all. Let us discuss the treatment of the sick by the medical profession. The doctors tackled this problem many years ago. I question whether one was much better off for medical care a comparatively few years ago. You know there is still a great question as to whether George Washington was bled or purged to death.

I have just finished reading the life of Pasteur. For years we have boasted about our achievements in medicine and yet but a few years ago Pasteur was ridiculed and discredited because

he did not belong to the medical profession. However, he prevailed and along with his studies came a scientific progress within the medical profession. In other words, doctors realized that it was necessary to study and to experiment and to verify their findings. They insisted upon certain exact methods, and so the medical profession has grown and the care of the sick has been tremendously improved, largely through the adoption of the method of science and its teachings.

With the poor, progress has been made. The social sciences have indicated certain ways which we should follow. A few years ago there were, perhaps, fifty orphanages in Boston. The problem child was thrown into an orphanage. Perhaps it would have been better for him to have been left to wallow in the gutter because orphanages frequently bred everything that was bad. A great many of the evils of the past generation were due to contamination in orphanages. But the child-guidance clinics appeared; scientific methods were applied to the problems of children. At the present time we no longer see a child-helping society trying to induce a family to adopt a feeble-minded child. In fact, if you wish to have as your son a perfect child, the surest way is to go to a child-placing agency. There are many examples of the application of the scientific principles to the care of the poor.

Lastly we come to the criminal. It is natural for human beings to pity one who is in trouble. Ever since the Babylonian days the sick have been the subject of sympathy and the poor have had a certain amount of attention, but the bad have been outlawed. If one does me an injustice, it is natural for me to resent it. If a man does an injustice to society, it is natural for society to resent it. So when we deal with the criminal we have a much different problem on our hands. To do it well, we must practice a certain amount of renunciation and at times go against our natural instincts. We are just getting to the point of studying the individual criminal. After all, the important thing, I believe, in the whole problem of crime is to tie it up with social work and to get society to recognize it as a social problem. During the past year we have reported all admissions to the state penal institutions to the Central Index. You will, perhaps, be interested in seeing the percentage (72%) of positive replies. Now if these individuals are social problems, the proper way to handle them is through the technique of social service. The instrument of this technique is the case history, and I believe our first task is to introduce the case history and case work into criminology.

Let us run over briefly what society has done for criminals in the past. In primitive society the law is the rule of the strong. If anyone interferes with the strong man, he loses his life. I have recently talked with a man who has come back from East Africa. He told me that there were no laws and no government, but customs which were never broken. Their conduct is approximately standardized in so far as the limitations put upon it by custom are concerned. We have so many laws and so many customs that our conduct is standardized to a much less extent. The magic man, through control of the supernatural, also vies with the strong man, but these two are the censors of the conduct of primitives.

Along about the Old Testament time, society took an interest in its individual members. The method of the individual seeking retribution was still used, but there is a beginning of the concept of justice. A man must suffer if he did wrong, but there was a certain expression of fairness. The Israelitish tribes said "an eye for an eye and a tooth for a tooth". This developed, in the Roman days, to the theory of abstract justice. Justice is always represented as a female—I know not why; she is blindfolded so that she may not consider the individual needs of the case before her. Justice is afraid of human sympathy; she is but a technician operating the scales, weighing the amount of damage done society, on one side, and putting an equal amount of punishment on the other.

Later, during the middle ages along with witchcraft and superstition, came a new theory. This theory taught that the only safeguard of society was the deterrent effect of punishment. In other words, the sufferings of those caught must be so terrible as to frighten the rest of us into conformity. According to this theory, the reason I do not pick Dr. Briggs' pocket tonight is because I have recently seen somebody hung for that same sort of thing. The outrageous tortures which human ingenuity devised to carry out this theory make us shudder today.

Then a softening influence came over us. We were no longer able to stand these horrible spectacles. Enlightened people did not relish executions, and corporal punishment gradually disappeared. I do not doubt, however, but that the mob would still relish a drawing and quartering, but we were no longer content to let them satisfy their animal cravings by such spectacles, so prisons and jails became places of punishment. At first all felonies were punished by corporal means. The jail came in as the method of withdrawing certain persons from society and inflicting punishment. But these jails soon became the most loathsome places in the world. Crime, disease and vice of all sorts were generated there. It was still supposed that the punishment was what was going to do the work. In fact, our great philanthropist, Samuel G. Howe, objected to the Charlestown State Prison and its methods, and favored the Philadelphia system, pointing out that 26% of admissions under the Philadelphia system became insane, as evidence of its efficacy.

Along with the educational wave of the last century were many theoretical considerations.

One was that there was a certain formula in education which could be applied to individuals, modifying their careers and conduct. This wave reached the prisons, and the reformatory idea was instituted. The mother substance of what we were trying to do was still retribution, justice and deterrence, but a drop of modernity was introduced with the reformatory idea. This merely followed the educational theory. It was supposed that by sending a young man to the Concord reformatory, for instance, assigning him to a cell, subjecting him to a certain discipline and to certain formal educational and vocational procedures for a definite length of time, he would be turned out modified or reformed. In spite of the excellence of the Concord reformatory, I doubt if any one of the gentlemen present tonight would care to send his boy to take advantage of that procedure because he would be afraid that it would do him harm.

This, briefly, is the history of the past, and I wish now to run over a program for the future. In the first place, all criminals are social problems, little different from the rest of us. Some are feeble-minded, some insane, some have abnormal personalities, but after all, they represent a cross-section of society, with an excess of handicapped individuals. Some differ because of their physical condition. Forty-seven per cent. of a series of cases studied at Bridgewater recently were physically unable to pursue gainful occupations, and I am told that something like 40% of the admissions to our training schools are mentally inferior. We have all these handicaps which must be considered, but let us forget these specific handicaps and look at society in general. In the first place, this conforming propensity is taught in the home. My wife does it in my home and if my children do not use their napkins at the table, she corrects them. If they take their knives in their left hands, and their forks in their right hands, they are admonished. All of us who have children are familiar with this simple procedure. Let us suppose that the father and mother are not available to supervise early conduct. Isn't this a very definite indication as to what will happen and as to what should be done. The whole field of child guidance recognizes the necessity of providing adequate training for neglected children. When these children get out from the home and go to school, once more they are being taught conformity, but suppose they are difficult and have not been properly trained at home or have other handicaps which make their school careers a problem. Briefly, they need to be handled as individuals. Case studies need to be made and the technique of a child guidance clinic should be carried out. Fortunately this work is already being begun but it needs to be tremendously expanded if we are to seriously attack the problem of adult crime.

We now come to that point at which the problem child comes into conflict with organized society. The police are in charge of this matter. Even today the police are doing a great deal of case work. If you consult the patrolman on the beat, you will find that he has a great deal of data which a social worker uses, but he doesn't consider it of any importance. There is a tremendous field for social work among the police. Why should they wait until a serious crime has been committed before they take any action? Fortunately, progress is being made in this field. Policewomen are actually doing welfare work. They are doing this so effectively that recently the Governor of Rhode Island complained that they did not wear uniforms and were doing welfare work. Governors may come and go but the policewoman is apparently here. I can foresee the tremendous development of case work in police departments. Whether this will be administered by police or whether it will be referred to other organizations I cannot say, but it isn't at all fantastic to expect to see social service sections in our police departments, leading them to give up their military attitude and their allegiance to "treat 'em rough" methods.

We now come to the courts. At the present time our courts are run in much the same manner as in the days of King Solomon. As a matter of fact, when we read the old Jewish stories, we often lament that King Solomon could not come back and take the place of some of our present-day persons. The personalities of our judiciary have been familiar to me for many years. I respect them; I respect their motives and respect them as men, but they are using the methods of King Solomon, which do not mean progress. They are suspicious of us as psychiatrists. Their attitude is exactly that of the doctors a short while ago. When I joined the staff of the Boston Dispensary, about 1912, the doctors were very suspicious of the social workers. They called them "—— old maids" and accused them of meddling and butting in. Today at the Boston Dispensary and the Massachusetts General Hospital the social worker has a place. The doctor looks upon her as a comrade and associate and takes advantage of her services wherever he may. The probation officers of the courts are the analogy of the social workers in our hospitals. Few judges are using them intelligently. I know of judges who will not sentence a person until they get all the facts from the probation officer. The probation officer is his right-hand man and comrade, and he is striving to use modern methods, but in many courts the probation officer is merely a clerk or used as a general court factotum. The whole undertaking of a criminal court is a social service proposition. The probation officer should be the case worker. This should be tremendously expanded and I have no doubt that when probation has advanced to a point where it is able to get and understand all the data, the majority of

judges will use it wisely. In my opinion the court is the focal point in the control of crime. It is the out-patient department of the hospital. We are a long way from this today, but progress is being made which is very reassuring; juvenile courts and courts of domestic relations are in many parts of the country being conducted on the same principles as a clinic, with the fullest use of the scientific method.

As in medicine, there will of course, be cases which cannot be handled in the community as out-patients. There will be cases which are intractable, or weak, or in need of specialized treatment. There will be problems so very serious that the time and facilities will make it unwise for the court to attempt to handle them as out-patients. This presupposes a prison system. There should be one or more clearing houses in every state prison system. Here all sentenced persons should be sent, their study continued, their program discussed with those who have had their supervision in the courts, and a plan made for their proper study and care. I would not take the sentencing power away from the judge. In the first place, this would reduce him to a mere referee and destroy his prestige. In the next place, I believe it better to fix absolutely the responsibility in the judiciary and then insist that they assume that reponsibility and administer their office according to the standards of the century in which we may live. I would give the judge ample facility for the study of his case, plenty of probation officers, psychiatrists, whatever personnel he needs, and then let him pronounce sentence. The individual would then go to a clearing house. Perhaps his case had best be studied before the judge pronounces final sentence. Then the prisons should operate for specific purposes as do hospitals. In this state we might send all felons to a clearing house at Concord, all women to Sherborn and all misdemeanants to Bridgewater. At these places their cases could be scrutinized. If the judge was not sure, he might send the person there for observation. We might then send cases to the new institution at Norfolk, where it is hoped that everything in the way of educational facilities will be developed. If the individuals are custodial cases, they might be held in strong places. Bridgewater and houses of correction might well be used for drug addicts, alcoholics, prostitutes and other misdemeanants. Certain of these would work out on the farms, getting physical rehabilitation.

All of the inmates of our prisons, with their families, present very complex social problems and the social service facilities of the prisons should be extensive. Of course, we are a long way from this program and yet a beginning has been made. The tubercular are segregated at Rutland, the defective delinquents and criminal insane at Bridgewater. Nearly 300 of the State Prison group are in honor camps in Rutland and Norfolk, but this should be extended. The criminal insane and the defective delinquents should be cared for under the same standards as used by the Department of Mental Diseases. There is, perhaps, need of a little greater security for certain cases, but lower standards should be abhorrent to us all. Massachusetts has set a high standard for the care of the insane and the feeble-minded. The fact that one has committed a crime does not justify physicians in accepting lower standards. There cannot properly be two standards of medical care in the same community.

Again, we have a tremendous infirmary group in our penal institutions. These are being cared for at the present time at Bridgewater, but this number should be increased and greater facilities developed.

Lastly, we come to parole. Parole is erroneously considered as early release from prison. It is not "early" but "conditional" release. If the courts were equipped to run as out-patient departments, parolees should be referred back to the court from which they came for supervision, thus keeping the power in the hands of the judges. If the courts continue to maintain their more or less passive attitude toward this matter, parole may well be administered by a state department. Aside from geographical considerations, it had perhaps best be administered by the institution in which the man had been confined. There are criticisms of parole; at the present time, necessarily, because of legal handicaps, it is more or less indiscriminate. It is, perhaps, used as a method of maintaining discipline. Here again we need intimate knowledge of each individual and the situation in which he is to enter. In my own opinion, through social service we may hope to do at least as much by the way of preparing society to receive an inmate as in modifying his conduct to conform to society. Parole should be not only a reward for good conduct in prison, but should mean that a professional study of the individual indicates that he has improved to the point where it is safe to return him to out-patient care.

Let us summarize our program for caring for the criminal population of Massachusetts. In the first place, it does not necessitate anything so very revolutionary. The most revolutionary thing which is indicated is in the point of view. It does mean that we must have coördinate effort by parents, schools, police, judges, courts and prisons. The key to all this coördinate effort is good case work. The staff of a prison should be analogous to the staff of a hospital. Most of the work of a prison can be reduced to a routine, which men of little education and capacity can do well and faithfully, but the professional staff should be of the best. Our present situation is as if there were no visiting staff at the City Hospital, individuals being merely sent there for confinement. Our prison staff should consist of trained men—doctors, psychia-

trists, sociologists, educators—so that all inmates could have a definite diagnosis, a social diagnosis, resulting in a program for each. There will be many failures, but the data gleaned from these case studies should furnish the direction of our future movements rather than the traditions and superstitions of the past. This case work should not begin after a man has become 50 years of age and killed somebody, but when he first commences to appear as a problem. Our task is extremely difficult. We not only run against tradition, not only against instinctive prejudices, but against customs. We have a lot of instinctive vengeance and traditional objections to overcome. Our task would be much easier if all individuals interested in this problem would present a solid front and come to an agreement as to certain basic theoretical considerations. We could then allow each group to develop in its own way, each taking advantage of the success and failures of the others.

In closing I wish to express my great satisfaction in having the opportunity of addressing the Massachusetts Psychiatric Society. Psychiatry has claimed much in the field of criminology. I personally hold it responsible for great achievements in the future.

Discussion

Dr. L. Vernon Briggs: We are all greatly indebted to Dr. Stearns for his enlightening talk tonight. I think it would be very pleasant to hear from some of the members, perhaps not in discussion, but if anyone wants to ask any questions, or make a few remarks, I should be very glad to hear from him.

We have with us tonight a psychologist from New Zealand, who is up here to study the prison system. I think we would like to hear from him.

Mr. Henry Field: *Mr. President,* it is indeed a very great pleasure for me to attend this meeting of doctors this evening. It is not my place, on such an occasion, to enumerate the privileges I have in working under Dr. Stearns in the Department of Correction.

In regard to the crime problem in this country, it seems that the developments have reached an extremely interesting step. In other countries, take for example New Zealand, with which I am most familiar, the figures for recoveries from criminal states would appear to indicate a superior procedure. Our recovery rate is very much higher in reformatories. You have the problem of racial mixture, the problem of rapid immigration, etc.; consequently, the success or failure of the treatment of criminals is not an index of the effectiveness of the system, but it is an index of the complexity of the problem which you are facing. It has been particularly interesting and stimulating for me, in observing the situation in this State, to find the extent to which physicians are availing themselves of the different institutions, but at the same time, to find specialists who are prepared to admit that such a general problem cannot be handled in any specific way.

Mr. Chairman, it would be presumptuous for me to attempt at any length to express my opinions or describe some of my interesting observations. This has been a very great privilege and I thank you, sir.

Dr. Briggs: We always like to hear from Dr. Campbell, who, I know, has a great many of these problems brought to the Psychopathic Hospital.

Dr. C. Macfie Campbell: I am very glad to express my appreciation of the address made by Dr. Stearns which is, I think, absolutely in keeping with the best psychiatric thought. In some address made before, perhaps at the National Conference for Social Work, by Dr. Adolf Meyer, he referred to the tremendous advantage it would be when the police were no longer looked upon as a repressive and military form, but as a great social agency as well. I have been very much interested in the wide survey of the whole situation which Dr. Stearns has put before us, and I think that all of you here, who are dealing with formal solutions of the problem which Dr. Stearns has outlined, realize what a breadth of view his address has shown and how sound are the principles which inspired it.

Dr. Briggs: Almost all the members of our Society have this crime problem to deal with in the hospitals—people sent for observation—and the one who oversees them all is Dr. Kline. I think we would like to hear from him who is the head of these hospitals which are constant recipients of cases from the court.

Dr. George M. Kline: *Mr. President,* I came to learn from Dr. Stearns, and I think I have absorbed a great deal from his admirable address. The State Hospital system is in the position, or takes the position, of wanting to coöperate in this management in any way possible, particularly, inasmuch as the Commissioner is a psychiatrist. There is an opportunity for the psychiatrists in this State, I think, to be of great assistance to him in this program—modern, farseeing, and different from any that has existed before. They can make a distinct contribution in aiding and in influencing public sentiment to this approach, and to that end I am sure that Dr. Stearns, as Commissioner, knows that the state hospital men and the psychiatrists in private work stand quite ready to render every possible assistance.

Dr. Briggs: Does anyone else care to ask any questions or make any remarks?

Dr. Frederic H. Packard: I have been very much interested in what Dr. Stearns has had to say. I think there have been various attempts

made in many of the directions which Dr. Stearns has spoken of as desirable, and, as I look upon them, the failure has been due to the fact that it was this point of view, or that point of view, and there was no coördination. Dr. Stearns' suggestion is that we need coördination from these angles and in that, I believe, we will have success.

DR. RALPH M. CHAMBERS: Like Dr. Kline, I came here tonight to listen to Dr. Stearns, and I haven't much to say. On the other hand, with the little experience I have had in this work, there is one thing I would like to mention which is that these men are not alike. They are individuals who must be treated from the standpoint of casework. I think Dr. Stearns is absolutely right and if we support him, the thing will be put over.

ASEPSIS: A POSSIBLE INTERFERENCE WITH THE PHYSIOLOGY OF REPAIR

BY HERBERT L. JOHNSON, M.D.*

IT is the purpose of this communication to consider, briefly, the repair process in serous cavities and the influence upon it of modern methods of surgical technique.

Assuming that nature did not anticipate the introduction of aseptic surgery, it is reasonable to suppose that bacteria and their toxins were of prime consideration in the original scheme of defense and repair. A superficial consideration of the traumatic possibilities of the environment of primitive man leads us to believe that nature must have expected to entertain infection in every case of trauma. The invasion of a serous cavity by the horns, claws or teeth of some predatory animal could hardly have been accomplished under aseptic conditions. Then, too, the introduction of irritating chemicals and foreign bodies must have played a part. In the face of such conditions, a repair process had to be evolved and we are without evidence that time has, in any way, altered the original scheme. On the contrary, there is abundant proof that an important phase of the repair process is dependent for its inception upon the excitor effect of bacterial toxins, irritating chemicals, or foreign bodies.

For convenience in description we may divide the repair process into three arbitrary subdivisions. The first of these is the defense reaction; the second, structural repair; and the third, resolution. Obviously, each of these is excited into being by the demand for its existence, conforming to the rule that, "to a stimulus the living being responds by a reaction which tends to neutralize the effect of the stimulation". We shall, therefore, concern ourselves at this time with the interdependence of these subdivisions and the results to be accomplished by the fullest exercise of each.

Under our first subdivision, defense reaction, we shall consider the response of the serosa to the exciting influence of bacterial toxins, irritating chemicals, foreign bodies, or agents simulating the effect of any of the foregoing. Such a response is vigorous according to the degree and type of stimulation and the individual's ability to respond. This stage of the repair process is chiefly concerned with the production of a plastic exudate rich in fibrin, leucocytes, proteases and a host of unknown factors. A subserous leucocytosis forms a reserve line of defense. The rôle played by the white cells in the battle against invading organisms, and their phagocytic function in clearing away the by-products of defense and repair, need only passing mention. The fibrin content of the plastic exudate we shall consider at some length. That this substance is of great importance in the body's defense against infection has long been established.

Morton[1], in testing peritoneal absorption in the normal peritoneal cavity, the peritoneal cavities of inflammatory peritonitis and of bacterial peritonitis, noted that in most cases the dye was absorbed at essentially the same rate. A definite retarding of the absorption rate was noted in a few cases of fibrinous adhesive peritonitis, due to the localizing of the process by the action of fibrin.

David and Sparks[2] call our attention to the inhibitory action of fibrin on the absorption of colon bacilli and diphtheria toxin from the abdominal cavity. In an elaborate series of peritonitis experiments David[3] noted the following: "Colon bacilli pass directly into the blood stream, as well as into the lymphatics, from the normal peritoneum. A well-developed plastic peritonitis prevents the passage of bacillus coli from the peritoneum into the blood stream or into the lymphatics emptying into the thoracic duct. Lesser grades of peritonitis prevent the passage of bacillus coli into the blood stream but usually do not prevent its passage into the lymphatics." These observations tend to emphasize the desirability of an abundance of fibrin as an element of defense.

Buchbinder[4] lays further stress upon this point in his consideration of the "two mechanisms in widespread peritonitis,—obstruction through ileus and toxic absorption". He states that: "Exudation and absorption play the outstanding rôles in peritonitis. The entire mechanism of the peritoneum is concerned with the attempt to localize and limit the extent of serosa

*Johnson—For record and address of author see "This Week's Issue", page 568.

involved. Fibrin plays the major rôle in this mechanism. By its close adhesion to inflamed surfaces it delays absorption. The diffusion of an inflammatory process in the peritoneum is dependent on, or follows, a deficiency in fibrin formation. . . . It is obvious then that any procedure which interferes with or prevents fibrin formation would be a dangerous one." In this last statement Buchbinder is, in all probability, referring to the use of hypertonic solutions but, in effect, it applies to any form of surgical invasion of a serous cavity which deprives the serosa of the stimulus necessary to a vigorous defense reaction. This author further relates a "striking paradox" occurring in animals suffering from a virulent type of peritonitis. "In such a peritonitis, with no fibrin in evidence, one would assume that the capacity of the peritoneum for encapsulation of a rubber drain would be no greater than its capacity of encapsulation of the source of infection. Yet the omentum will more effectively plug a benign rubber drain than a bowel perforation or the open end of a contaminating loop, and the vicinity of the drain will quite likely show the only evidence of fibrin in the abdomen. This should reëmphasize the futility of any type of drainage in peritonitis." With this latter assertion I am not entirely in accord. Drainage of a localized process is unquestionably of great value. In fact, localization is the preliminary step in nature's plan of spontaneous evacuation into a hollow viscus or upon the body surface.

Whether drainage can be of assistance in the treatment of a diffuse infectious process is a question which is far from settled. In these cases the diluting effect of the fluid volume of the exudate undoubtedly prevents fibrin from acting as a deterrent to absorption. Any method of treatment that will assist in depositing a fibrinous coating on the serosa will, to that extent, influence favorably the outcome.

Albee and Patterson[5], using the Orr method of treatment in a large series of osteomyelitis cases, suggest "that some principle is retained in the wound by this method of dressing, which will, if undisturbed, contribute materially to the destruction of the infecting organism. It is probable that this consists in part of the antibodies and living phagocytes; but the further suggestion was made that the specific bacteriophage accumulated in the wound if it was not dissipated too rapidly by drainage, irrigation and frequent dressings". This principle undoubtedly applies to infection in serous cavities.

If we can derive any guidance whatever, from the foregoing observations, as to when and when not to drain a serous cavity, it would appear that our present practice of draining only those cases in which there is apparent a "walling off" effort is a pretty safe rule to follow. In short, our surgical efforts must be along lines of slowing the absorption rate in diffuse infections and the early evacuation and drainage of localized processes.

In concluding his experimental work on peritonitis, Buchbinder reminds us that: "Rapidity of absorption in the largest measure governs the prognosis of acute diffuse peritonitis"; and, "Fibrin is the most important factor in controlling the rate of absorption."

Since the value of fibrin is so well established, the necessity for a vigorous defense reaction seems obvious. It is only through the agency of an exudate rich in fibrin that we can hope to slow the absorption rate in acute diffuse infections on serous surfaces.

The second subdivision, structural repair, has for its purpose the replacement of injured or dead tissue and the restoration of surface continuity. The fibrinous strands deposited in the process of defense reaction act as guides to the growth of new tissue and serve to house the elements of defense within their meshes, forming, thereby, a barrier against the prevailing infection. The more orderly the growth of the fibroblasts within this guiding meshwork, the less is the likelihood of their union, by "first intention", with similar processes on opposed denuded surfaces.

MacCallum[6] says, ". . . it seems that the presence of the fibrin containing necrotic tissue offers a chemiotactic attraction which guides the growth of the invading blood vessels, and it may be that it is really a chemical stimulus to growth. An exudate of fibrin on the surface of the peritoneum or pleura, where no unbalancing of the mechanical or functional equilibrium can be caused by its presence, exerts the same influence on the underlying tissue and is quickly replaced by a new tissue".

Warren[7], in a recent study of the repair process on serous surfaces, noted that under the influence of an artificial excitor the fibrinous strands were deposited in a much closer mesh, promoting a more orderly growth of the fibroblasts and a more satisfactory restoration of surface continuity.

Trusler[8], using the same artificial excitor employed by Warren, noted in a large series of animals that "when the untreated control is reopened for observation at 48 or 96 hours, we find hyperemia and localized exudation with all abraded surfaces adherent to one another. The treated animal shows a slightly more marked hyperemia and a great increase in the amount of exudate which contains serum fibrin and leucocytes, chiefly large mononuclear. There is a tendency for the abraded surfaces to float free in the exudate with an obvious facilitation of healing. After 96 hours, the reaction has passed through its maximum and the exudate becomes a film or meshwork of fibrin in which repair of the traumatized tissue and regrowth of the endothelial covering takes place rapidly". This au-

thor has further observed that the reaction by which this artificial agent stimulates healing is also effective in preventing the development of peritonitis.

Lacey[9] also used the artificial excitor employed by Warren and Trusler, making very careful observations, by means of smears, of the traumatized surfaces and the peritoneal exudate. He noted that "there seemed to be a slight increase of polymorphonuclear leucocytes and many large free macrophages in the treated animals as compared with the control animals. This probably indicates a more vigorous defense reaction to local injury. A smear taken from the peritoneal fluid of a treated animal which had recovered from the peritonitis and was subsequently killed after 120 hours showed a preponderance of mobilized histiocytes and a very few fibroblasts.

"Smears were taken from the fifth group twenty-four, seventy-two and 120 hours after operation. The peritoneal fluid of the control of twenty-four hours showed many red blood cells and a few macrophages and leucocytes. A smear from the treated animal at the same time showed a great reduction in the number of red cells and an increase in the number of macrophages, the predominating cells being cells of the polyblast type.

"Smears from the sites of trauma in both control and treated animals showed many red blood cells. At seventy-two hours, the smears of the controls showed a preponderance of red blood cells while in the treated animals the proportion of red cells and polyblasts was about equal. Smears from the site of trauma at this time were nearly identical with the peritoneal fluid. There was practically no difference in the smears of the peritoneal fluid of the control and treated animals at 120 hours. Both showed a preponderance of the macrophages over the red blood cells. The smear from the site of trauma in the treated animal at 120 hours showed the first and only evidence of fibrin."

It is apparent, then, that the second phase of the repair process is best carried out under the protection of a vigorous defense reaction. The observations of Warren and Trusler suggest that the amount and arrangement of the fibrinous meshwork have a direct influence on the incidence of adhesions and the development of a septic process. The employment of an artificial excitor merely accelerated a normal process, with better end results.

The third subdivision of the repair process, resolution, is so largely dependent upon the white cells and lytic ferments of the defense reaction that it may well be considered a terminal phase of the latter. Its chief function is the clearing away of the by-products of defense and repair. Among these is fibrin, which temporarily fixes together loops of gut, sections of omentum, mesentery and other structures, for the purpose of "walling off" an infected focus. Literally, these surfaces are adherent but, since the adherence is only temporary, succumbing rapidly to resolution (after the infecting agent has been disposed of), it is contrary to the general acceptance of the term to refer to this formation as adhesions, popular usage having reserved it for permanent fibrous unions, covered by serosa. That these fibrous adhesions do also disappear, in some cases, is no unusual observation and such a disposition is, in all probability, a form of atrophy due to contraction and a strangulation of the blood supply. Regardless of the mechanism involved, the outstanding feature of this terminal phase of the repair process is the removal, through natural channels, of the detritus of nature's effort to preserve life and replace damaged tissue. It is our final observation on the repair process in serous cavities and, with the other subdivisions, reminds us that a good end result of the whole can only be obtained by the fullest exercise of each of these subordinate phases.

That there is some clinical basis for our deductions is brought out by Tuttle in an analysis of 3285 cases of appendicitis. He noted that in fifty-six deaths, intestinal obstruction, due to adhesions, was a relatively rare sequel and was found almost entirely in clean cases. Postoperative adhesions were also most frequently seen in cases in which there had been no previous drainage. From the prevailing attitude toward drainage, over the period covered by this series, it seems fair to assume that "no drainage" meant no suppuration at the time of operation.

The light aseptic trauma inflicted upon the serosa, in the average "clean case", is not in itself sufficient to excite the production of a heavy plastic exudate. In consequence, moderately abraded surfaces are permitted to lie in contact and heal together by "first intention", giving rise to the most damaging type of adhesions. It follows, then, that any technique employed in surgery of the serous cavities that deprives the serosa of the necessary stimulus to a vigorous defense reaction is inconsistent with nature's original plan of repair.

The advantages of asepsis and antisepsis over former methods of surgical procedure are so overwhelming that to relinquish even a small fraction is unthinkable. It devolves upon us then to seek a harmless substitute for the excitor effect of bacterial toxins, irritating chemicals, etc., that we may more fully conform to the scheme of normal repair.

An agent, to be suitable for this purpose, must be non-lytic, non-irritating and practically innoxious; it must also be slowly absorbable. That such an agent would be most useful in cases of extensive trauma and operative contamination is obvious. Mindful, however, that the imperceptible erosion of a gloved finger or sponge may later form the base of a bothersome adhesion, the routine use of an artificial excitor in all surgery of serous cavities is advocated. A possible

exception to this general rule is the well-established suppurative case. Here the serosa is presumed to be already in a state of maximum stimulation and the employment of an excitor cannot be expected to influence the outcome to any great extent.

In general, however, it will be found that the routine employment of a suitable artificial excitor will, to a large extent, neutralize the interference with the physiology of repair that is probable in the employment of a strict aseptic technique.

SUMMARY

It seems logical that the physiology of the repair process in serous cavities was designed upon nature's intention to entertain infection and contamination in every case of trauma.

There is some evidence that bacterial toxins, irritating chemicals and foreign bodies are depended upon to stimulate the serosa to a vigorous defense reaction for the purpose of neutralizing the damaging effect of their presence. Structural repair, without the protection of this defense reaction seems contrary to the scheme of the original repair process.

The relinquishment of any small part of the advantages of aseptic surgical trauma is inadvisable. It is suggested, however, that the substitution of a suitable artificial excitor of a vigorous defense reaction may neutralize a possible interference with the physiology of repair.

Many of the foregoing deductions are based upon animal experiments and clinical observations. Others are purely hypothetical. They are submitted solely in an attempt to expose a working hypothesis and to establish a rationale for the employment of a harmless excitor in surgery of the serous cavities.

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ENDOSCOPY AND ITS INDICATIONS*

BY A. D. ROOD, M.D.†

ENDOSCOPY owes to Chevalier Jackson a debt of gratitude for the many years of untiring devotion and study he has given to this work, and for the results of his experience, which he has so freely imparted to others. Only hard labor and painstaking care have developed such technique and such instruments as are applied in examination by this method. Any glory or compensation this man has won cannot in any way pay him more than a fraction of the sum total due. Jackson, with a group of high-grade associates, has so refined the technical procedure of these examinations and operations that bronchoscopy and esophagoscopy are no longer looked upon as emergency measures of last resort. And to him who still believes that such terms are to be associated with only the foreign-body case, together with all the old-time dread of complications, this is to be said: In Jackson's clinic in Philadelphia, foreign-body work represents a proportion of about one case in fifty, or only two per cent. of the total number of cases examined and operated upon by him and his colleagues; furthermore, the mortality rate is as low as one per cent., including all cases.

From a narrow field, which a few years ago was restricted to the emergency foreign-body operation or tracheotomy, the list of indications for endoscopy in exploration for diagnosis and treatment of conditions to be found in the larynx, bronchial-tree, pleural cavity, pharynx, esophagus, and sometimes the stomach, has so lengthened that, at the present time, it is possible for a bronchoscopist to render an invaluable assistance to both internist and surgeon. In other words, the bronchoscopist renders the service of an assistant and, as such, considers himself as only a link in a chain made up of internist, surgeon, roentgenologist, pathologist and bronchoscopist, although in this chain or group he may serve in three capacities:

1—As a surgeon.
2—As a therapeutist.
3—As a diagnostician.

While in *surgery*, or in foreign-body work, the endoscopic group may act as a principal unit, just as any surgeon may rate in his particular field, even then it is only after consultation with one or more of the other members of the chain referred to above.

In *treatment*, the bronchoscopist must consider his work as only a part of a program, just as digitalis may or may not play an important part in the treatment of heart disease.

In *diagnosis*, endoscopy serves as an additional procedure and offers a type of examination that will, in properly selected cases, without danger or unreasonable discomfort,

*Read before the Osler Club of Springfield, Mass., November, 1930.

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(1) Confirm evidence already gathered.
(2) Contribute additional data.
or, (3) In itself furnish facts that can be obtained in no other way;

and, it is not unreasonable to ask that such a type of examination be considered as regards its value in the programme of careful thoracic examination.

In presenting some of the indications for bronchoscopy, laryngoscopy, and esophagoscopy, it is evident that a complete list is long and any list that mathematically states indications often arouses doubt of value, smacks of over-enthusiasm, and, to one not familiar with the scope of the work, may seem to approach the border-line of exaggeration.

Therefore, to avoid such impressions there is no occasion to memorize a list of indications because clinical acumen will recognize conditions as they present themselves and, in consequence, determine whether endoscopy is necessary for diagnosis, treatment, or both.

To no other part of the body can there be applied so many kinds of direct and indirect examination, with the possibility of gaining positive information, as to the thoracic cavity. It is a cavity that contains a respiratory and cardiovascular system, an esophagus and a mediastinum, a rich vascular and lymphatic supply and an enervation that is more or less common. The content of the thorax forms an inter-relationship so close that when pathological symptoms arise, it is seldom that any single procedure in the routine of chest examination is sufficient, in itself, to reveal a positive diagnosis. A single symptom may be common to a variety of pathological conditions or pathology in one organ may produce symptoms referable to others, so that a recognition of this reference of symptoms and physical signs, with variations from the typical to the atypical, has brought about, from time to time, additional facilities for gathering facts which may be summed up to render a diagnosis as nearly positive as possible.

The entire bronchial tree, from the larynx to the smallest bronchi, forms a system of flexible piping, which, although more or less stable in caliber because of the presence of rings or plaques of hyaline cartilage, nevertheless is extremely flexible and ductile, so that there is a diminishing of tube caliber, with shortening, during expiration, while the opposite is true (dilatation and lengthening) during inspiration, and, because of this flexibility and elasticity, bronchoscopic and esophageal examinations are possible.

This system of tubing is lined throughout with mucous membrane of the ciliary type, and any interference with the normal condition of this membrane results in (according to degree and length of time), swelling of the mucous membrane, loss of ciliary cell action, stenosis in the smaller bronchi and lack of pulmonary aeration. Continued interference leads to dyspnoea and increased cough, with retained secretions,—back pressure in the smaller bronchi on expiration, obstructive emphysema, atelectasis, bronchiectasis, pulmonary suppuration or even lung abscess, single or multiple, often accompanied by general systemic symptoms arising therefrom.

This sequence of pathological events may be widespread, as seen in chronic bronchitis, acute or chronic asthmas, postpneumonic conditions, bilateral bronchiectasis, lung abscess, etc. In fact any etiological factor that is capable of preventing drainage from the alveoli or smaller bronchi can, and may, bring about one or more of these conditions, whether caused by a foreign body, a mucous plug or blood clot, infection, or stenosis of a bronchial tube, and as a result there is always brought about in some degree the same sequence of progressive pathology.

Only too often a dry, long-continued non-productive cough, with breath sounds suggestive of asthma, may remain wrongly diagnosed as chronic bronchitis, asthma, or bronchiectasis when there may be present a primary carcinoma of a bronchial tube or larynx, mediastinal pressure or foreign body, any one of which conditions may be positively diagnosed or located by bronchoscopic examination.

Many of our hopeless cases have reached the stage of hopelessness because early signs were doubtful, and, although late physical signs and symptoms make positive diagnosis easy, yet such methods tend to render treatment palliative and not curative, and often show failure to utilize every diagnostic procedure.

Perhaps many of these conditions, in the light of our present knowledge, will remain hopeless even if endoscopy is done early, yet if we ever aspire to lower their mortality, it will only be accomplished by giving more attention to the doubtful cases.

Clerf[1], in his evaluation of the bronchoscope, places it third in the order of diagnostic importance, giving precedence to clinical and roentgen studies, while in all chronic pulmonary cases and in many acute cases, laboratory findings force it to the fourth place. But he further states that bronchoscopy is indicated when, after physical examination, radiographic studies and laboratory investigation, there still remains a diagnostic question.

Lilienthal[2] states: "The scope of bronchoscopy has rapidly widened from the extraction of foreign bodies to the diagnosis of many pulmonary diseases such as abscess of the lung, tumor of the lung, bronchial narrowing, bronchial ulceration, and mapping of the bronchial tree for roentgen ray demonstration and localization."

Funk[3] states that when in doubt, if there are no clear contraindications, the patient should be given the benefit of a bronchoscopic examination. He further states that he has witnessed the use

of bronchoscopy in many non-foreign body cases without a single untoward effect, and he concludes his article by saying that his experience attests the value of skilled bronchoscopy in suitably selected cases.

Jackson[4] has repeatedly emphasized the value of bronchoscopy as a therapeutic or diagnostic aid, yet he recognizes that this procedure is subject to definite limitations and should be more or less restricted to selected cases, and therefore is subject to the combined opinion of a team made up of clinician, roentgenologist, pathologist, thoracic surgeon, and bronchoscopist.

So that, for the purpose of complete thoracic examination there are available

1. The internist and surgeon.
2. The pathologist and laboratory.
3. The roentgenologist and x-ray.
4. The bronchoscopist.

each indispensable, no one always final, and in combination making up a coördinated team that is capable of giving finely drawn diagnosis and of directing a most rational treatment.

The larynx is the organ of speech. It is bounded and protected by heavy cartilaginous walls which permit of muscular attachments for the tension, the approximation, and retraction of vocal cords, so that a variation of sound and range of tone may be produced. Inflammatory processes will lead to thickening of the laryngeal mucous membrane, and if extended to the region of the cords, will prevent their proper vibration or approximation, with resulting voice changes in volume, range, and quality; for this reason the most common pathological laryngeal symptom is hoarseness.

Hoarseness is a symptom common to vocal nodules as often seen on the cords of singers and public speakers; it is a symptom of papilloma, laryngeal diphtheria or stenosis, vocal cord paralysis, acute and chronic laryngeal inflammation or malignancy, and most important of all is the fact that hoarseness as a symptom offers no variation in type, diagnostic of the particular condition present.

Cancer of the larynx, if diagnosed early, offers a high percentage of chance for permanent cure, especially the intrinsic type as seen on the vocal cords. Yet, in spite of this fact, the early case is the exception and not the rule. Procrastination of laryngoscopic examination in such cases is nothing short of tragedy, yet cases of laryngeal or esophageal malignancies are seldom seen early and the first endoscopic examination commonly shows advanced malignancy.

Because the larynx is so accessible to examination, and as such an examination can be made with only a moderate amount of discomfort, unusual symptoms of hoarseness, voice change or discomfort, should bring to mind diagnostic possibilities and the value of a direct laryngoscopic examination. Only too often this examination proves the so-called chronic laryngitis to be papilloma, fibroma, vocal nodules, stenosis, tuberculosis, vocal cord paralysis, or malignancy.

Just as the larynx has a common pathological symptom, so the esophagus has one symptom common to practically all esophageal conditions, viz.: dysphagia. Dysphagia may vary in degree from a desire to swallow frequently, or slight discomfort on swallowing, to actual pain and repeated effort to force a single bolus of food or liquid into the stomach. This symptom is present whether there is a foreign body, stricture, mild or ulcerative esophagitis, diverticulum, mediastinal pressure, carcinoma, or the so-called cardiospasm; In fact, anything abnormal within or without, affecting the esophagus, will produce some degree of dysphagia.

It is to be borne in mind that dysphagia is a symptom of nearly all esophageal conditions but is not pathognomonic of any one of them, any more than hoarseness is always indicative of simple laryngitis. Dysphagia, or discomfort on swallowing, is an early symptom, usually the earliest and often the only symptom, of beginning esophageal malignancy; pain, hemorrhage and the regurgitation of food are advanced symptoms; cachexia and the loss of weight are toxic or nutritional symptoms and, as good food intake may be obtained through an esophageal lumen from 5 m. to 7 m. in diameter, these symptoms do not appear until pathological changes have advanced to a degree of obstruction sufficient to interfere with nutrition.

Malignancy in the esophagus is about one hundred per cent. hopeless at the present time, first, because esophageal discomfort does not manifest itself until the growth has advanced enough to cause some degree of stenosis; and, secondly, having developed symptoms, more time, often several months, is lost in an attempt to alleviate them without first determining their cause.

Often we witness the removal of a normal appearing or slightly inflamed appendix to avoid more serious conditions; and yet is not one even more justified in performing a diagnostic esophagoscopy so that direct inspection and the removal of tissue for microscopic examination may offer at least an early opportunity to avoid more serious conditions?

SUMMARY

In summary it may be said of endoscopy that (1) As a method of direct examination it is definitely established and holds an important place in exploration of the larynx and tracheobronchial tree, the pharnyx and esophagus. The work requires a careful technique and a certain degree of skill, a properly trained operator and well-trained assistants, and, under these conditions, is not a major procedure.

(2) As a diagnostic aid endoscopy may render three important services:

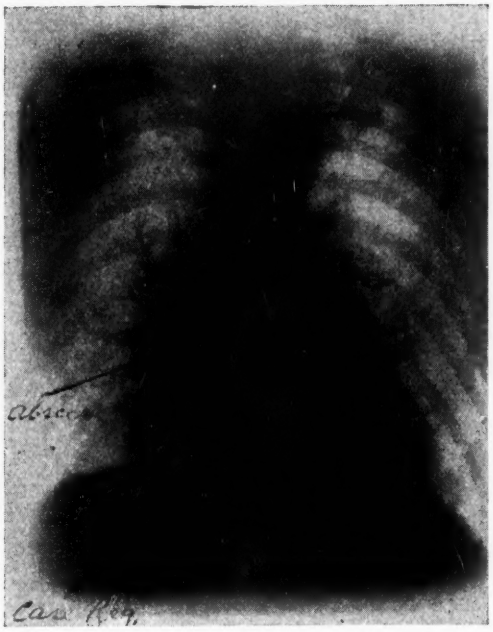
a. It may confirm physical findings.
b. It may furnish additional data.

c. It may in itself make diagnoses that can be obtained in no other way.

(3) As a part of the armamentarium of a hospital it offers assistance to the internist, surgeon, roentgenologist and pathologist.

(4) It presents a type of examination which, if skilfully performed, in properly selected cases, is devoid of danger or unreasonable discomfort.

CASE A. The patient, a man 59 years of age, for the past 15 years has been suffering from cough with purulent expectoration. He has always observed that he feels best when cough is accompanied by expectoration. Quite regularly (every 6 to 8 weeks) for the past 10 years, cough and expectoration cease for several days, during which time the patient suffers chills, fever and profuse sweats. These attacks last for 5 or 6 days, when recovery is coincident with reëstablishment of productive cough.



CASE A.

Repeated x-ray examination showed thickened bronchial trunks in the lower lobes.

Lipiodol instillation revealed an abscess in the lower right lobe.

After three bronchoscopic treatments, cough disappeared and for a period of three months attacks have not recurred.

Diagnosis: Pulmonary abscess, lower right lobe.

CASE B. A man, aged 47 years, had complained of non-productive dry cough for 10 months.

Physical examination of chest was negative excepting the presence of impaired resonance and absence of breath sounds over the lower right lobe posteriorly. No râles were present. The liver edge was not below the costal margin.

The patient had lost 20 lbs. during the past three months but thought this due to loss of sleep from almost continuous coughing.

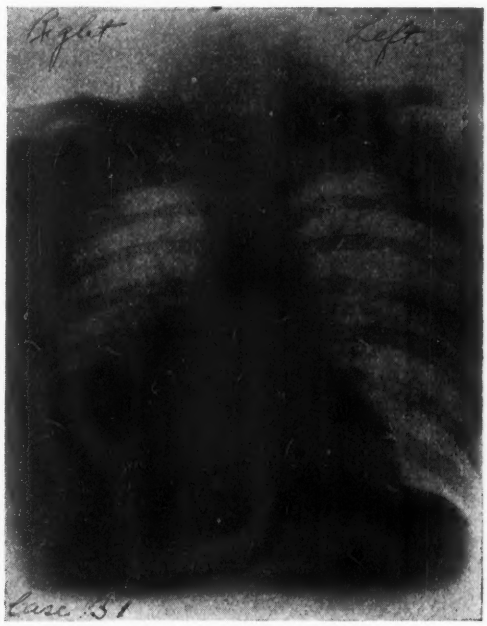
There was no history of hemoptysis.

Mirror examination of the larynx showed well-defined contact ulcers at the vocal processes which were removed without relief although these ulcers disappeared within a few days.

X-ray B1 shows shadow in lower right chest. Antero-posterior view.

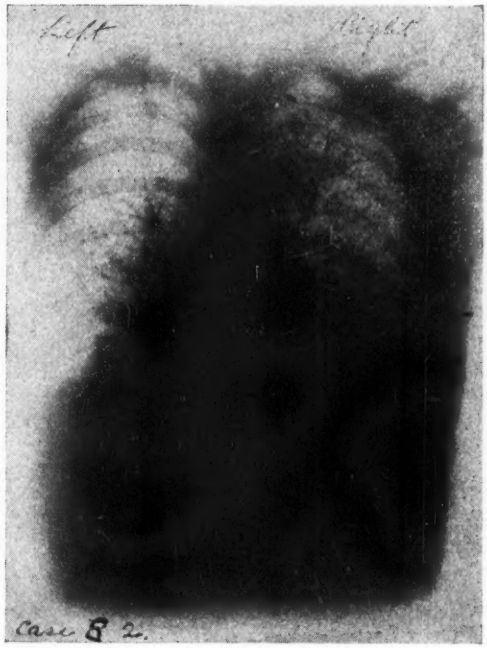
X-ray B2. Postero-anterior view after lipiodol injection.

Bronchoscopic examination showed complete ob-



CASE B1.

struction just beyond the right middle lobe orifice. There was free bleeding on sponging and definite fixation. The specimen removed was not satisfactory



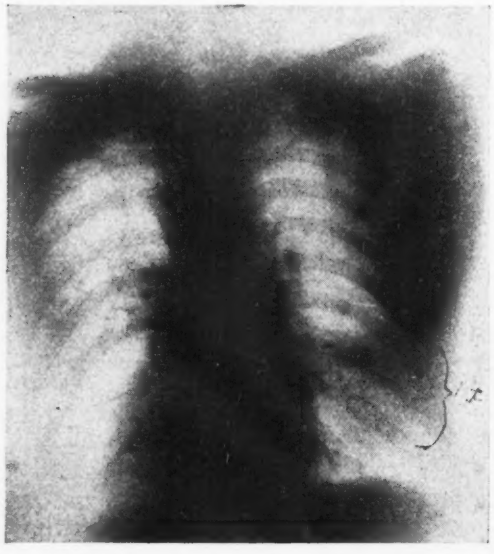
CASE B2.

as it was impossible to pass forceps beyond normal appearing membrane.

Diagnosis: Carcinoma of lung.

CASE C. The patient, a man 36 years old, has had cough for 6 months following an attack of "influenza".

He began spitting blood, which continued a few days, when suddenly he had a profuse hemorrhage;

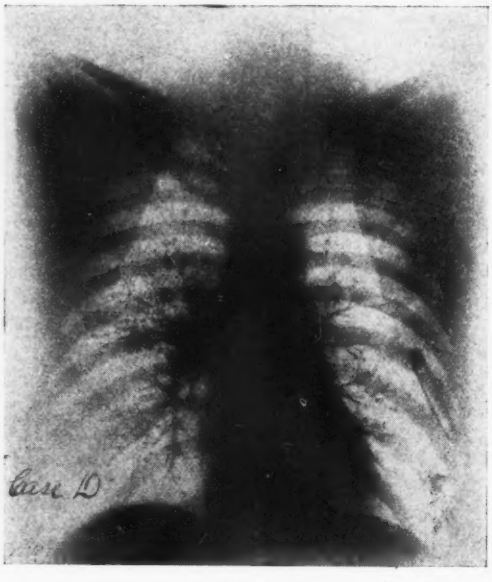


CASE C.

this lasted for about two weeks, the daily amount varying from two to six ounces of blood.

X-ray shows pathology in the right middle lobe.

Bronchoscopy showed blood coming from the middle lobe orifice, which was filled with bleeding granulations. This bronchus was aspirated, sponged as dry as possible, granulations removed by forceps and touched with 10% $AgNO_3$, and adrenalin chloride 1-1000 applied on a saturated sponge. Bleeding



CASE D.

stopped at once and did not recur for about 6 months, when the treatment was repeated during another very profuse hemorrhage.

There has been no recurrence of bleeding for the past year.

CASE D. A male patient, 44 years old, has for the past three years been suffering with attacks of bronchial asthma.

Chest examination showed almost typical wheezing but in addition there appeared difficulty on inspiration

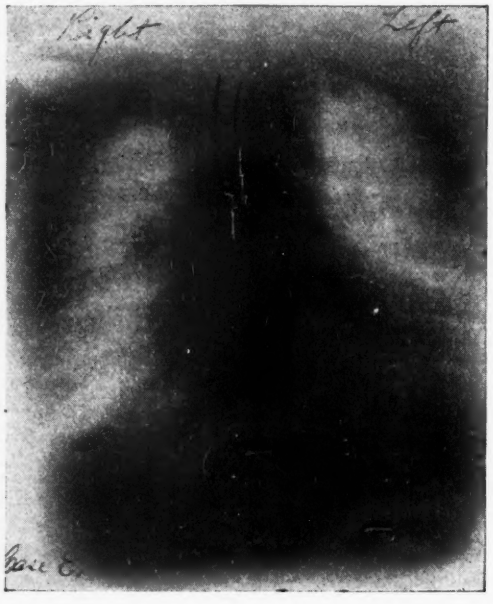
Protein skin tests negative.

X-ray showed no marked changes. Bronchoscopically, the bronchial tree did not show anything more than an inflamed mucous membrane.

Laryngoscopic examination showed overgrowth of papillomatous tissue deep in the posterior commissure, removal of which has greatly improved the asthma.

Diagnosis: Asthma with laryngeal papilloma.

CASE E. A man, aged 44 years, has complained of wheezing cough and dyspnoea and recently attacks of almost complete asphyxia. He has been treated for various conditions including asthma, chronic bronchitis and heart disease.



CASE E.

X-ray showed pathology in the mediastinum and lower left lobe.

Bronchoscopic examination showed a markedly deviated trachea, which, in its middle third, was compressed so that its walls were almost in complete apposition on cough. The left main bronchus was so compressed that a No. 7m tube could be passed only with difficulty. The right bronchus was large and showed only slight compression.

Note: This case is still under observation and it is planned to do a tracheotomy for the purpose of inserting a long flexible end cannula into the right bronchus for palliative treatment only.

X-ray treatment gave no relief.

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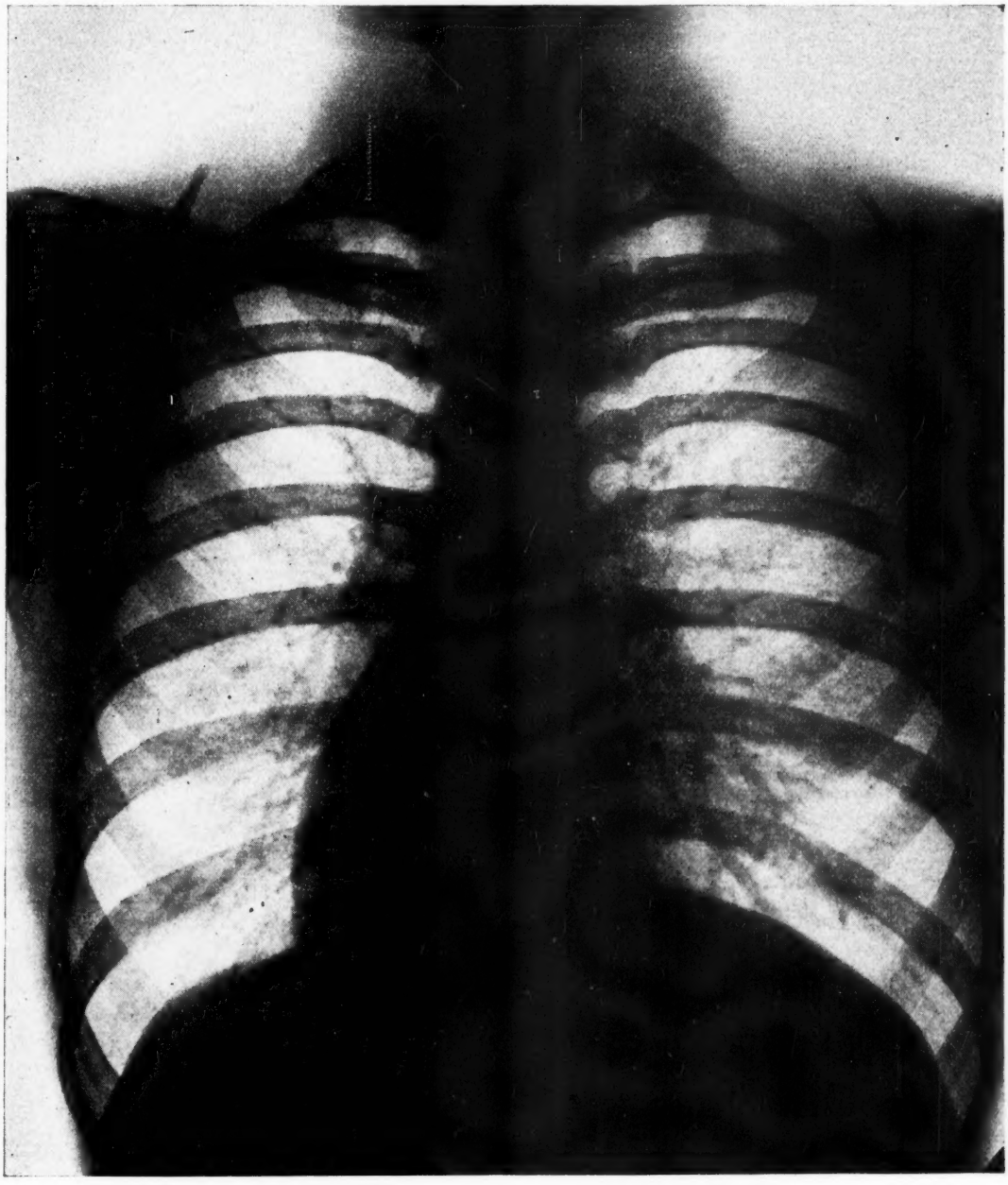
THE CARRIER OF TUBERCLE BACILLI

BY CLEAVELAND FLOYD, M.D.,* AND H. ALLAN NOVACK, M.D.*

THE term "carrier" has come to be accepted as applying to individuals harboring microörganisms, virulent or avirulent, but not suffering with the concomitant disease. The typhoid and the diphtheria carrier are well known and their recognition has gone a long way in elucidating the epidemiology of these infections. The term as applied to the tubercle bacillus would, at first sight, seem unwarranted and yet this condition exists. In about once in ten thousand examinations there is found a patient who is free from positive physical signs and x-ray findings and yet who intermittently expectorates tubercle bacilli. Occasionally such cases come to autopsy and the results of this examination have been equally negative.



Male. Age, 19 years. Physical Signs: Only those of thickened hila and retracted right top. X-ray, April 9, 1930. Stereo films show no definite abnormalities, except doubtful clouding of apices. Sputum positive.

This condition is not to be confused with

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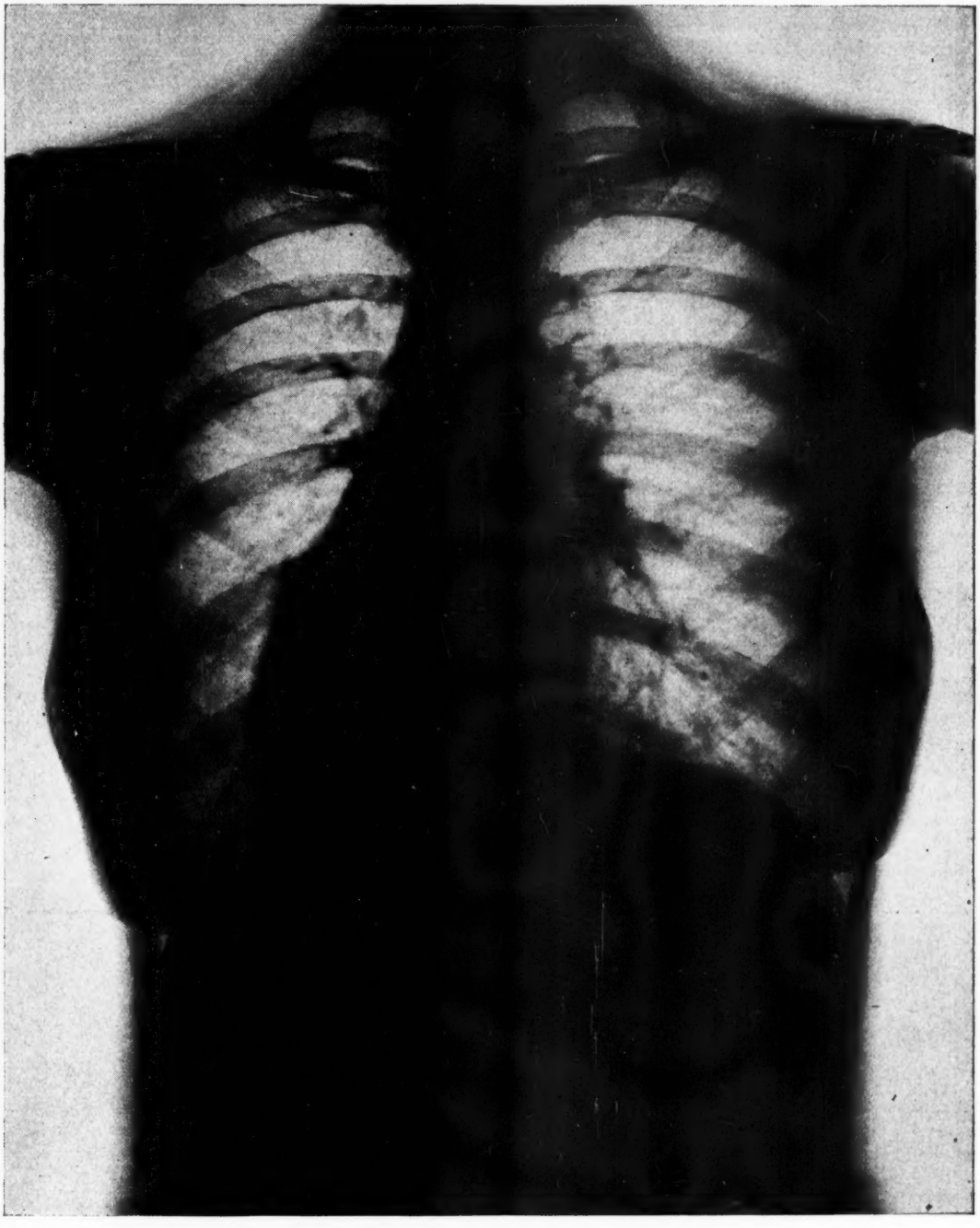
that noted by some observers as giving rise to definite symptoms. Bushnell speaks of a very early stage of pulmonary tuberculosis where the process, having originated in the glands, extends along the lymph channels. Norris and Landis, under the title "Masked Tuberculosis" recognize a group in which the symptom complex is varied and the respiratory manifestations either absent or only slightly apparent. Sewell gives an excellent description of the symptoms that may be attendant upon such a condition. He says, "These persons are usually not sick with a definite malady, but there is a general functional insufficiency and loss of staying power which can be brought out by physical exertion." This characterization, however, applies to a small tuberculous focus not extensive enough to produce signs but giving rise to sufficient absorption to produce a complex of slight and indefinite symptoms.

Male.
Examination negative.
Sputum positive October 16, 1929.
Sputum positive October 19, 1929.
X-ray negative October 21, 1929.

The "carrier," on the other hand, is, and feels, well. That he is a "carrier" has only been casually detected, generally by routine sputum examinations made during the course of a severe respiratory infection. The organism may be detected only once or only on two suc-

cessive occasions and not again. Only one bacillus may be found. But it is impossible to tell how frequently, under the pulmonary irritation of an acute bronchitis the expectoration may be positive. In at least one of the few bacilli. There may be a concealed focus behind the heart shadow from which the organism is given off. A minute pulmonary lesion or an intrapulmonary gland may have made the sputum positive.



December 17, 1929. Female. Age, 32 years.
Examinations—All negative.
X-ray, December 28, 1929. Stereo films show some minute discrete shadows of calcification within the left hilus shadow. The lung fields are otherwise clear.

recorded cases a lack of a positive tuberculin reaction points to a failure of sensitization from the presence of the tubercle bacillus.

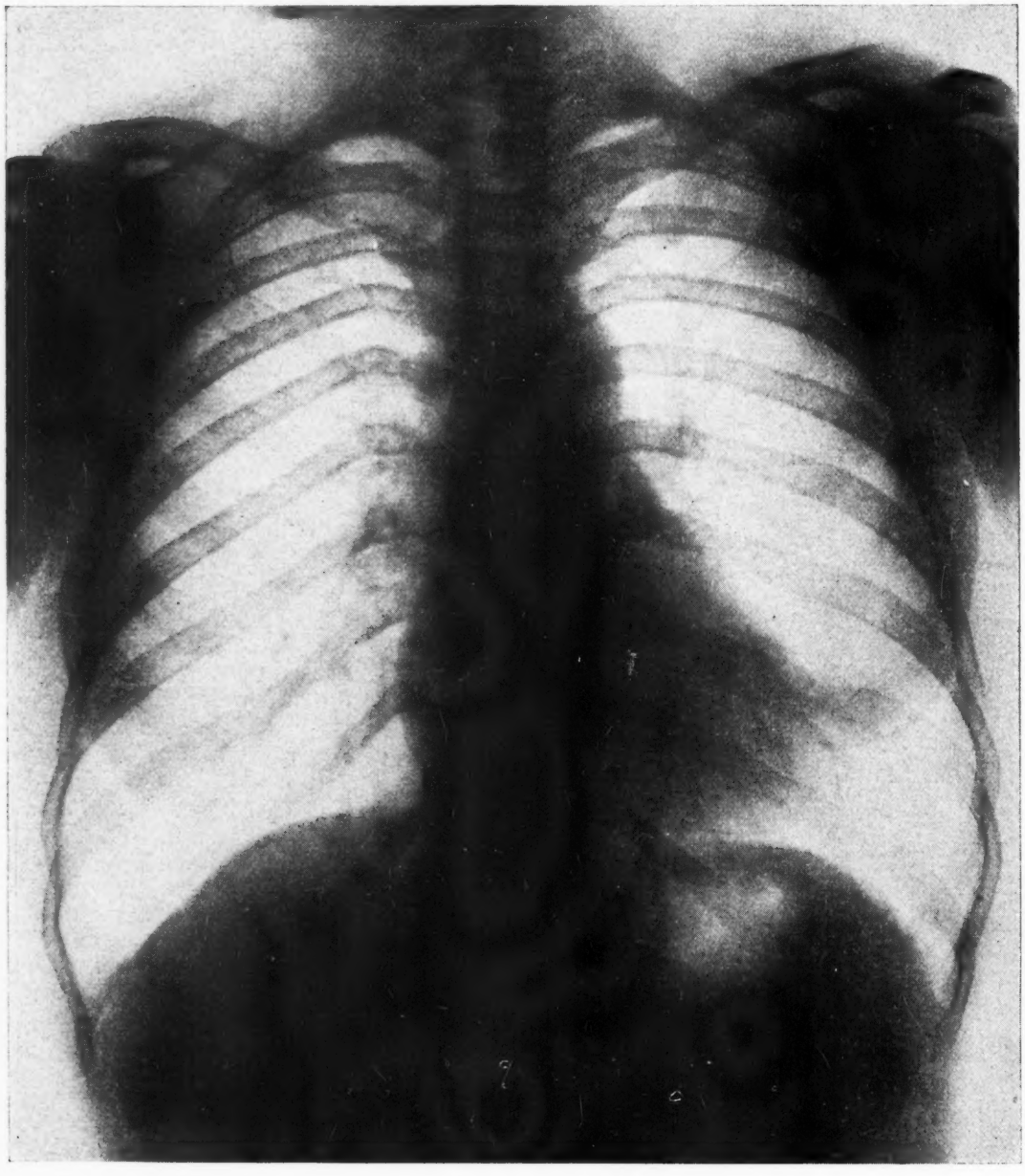
The source of the organism can often only be conjectured. An insignificant hilus gland may have a broken down capsule and discharged a

The importance of this class of cases does not lie in its frequency but in the possible part it may play in the epidemiology of pulmonary tuberculosis. A "carrier" of tubercle bacilli may be the unrecognized source of a familiar disease where contact cannot be discovered. In how

many instances this occurs it is impossible to state, but it is probably much more common than it appears.

The course and outcome of the carrier case have been negative. The period of observation has extended over several years with no development of symptoms or physical signs and the rapid disappearance of the bacillus. Sputum examinations at frequent intervals, when expectoration persisted, have failed to show the tubercle bacillus subsequent to its original appearance.

For many years every writer on tuberculosis has stressed the importance of repeated sputum examinations in any suspected case. In order to detect the "carrier," not only the suspected case but also any patient having expectoration must have repeated routine sputum tests. In this way a further step will be taken in the control of tuberculosis.



Female. Age, 35 years. Always well. A year ago acute bronchitis and bronchopneumonia. Cleared up entirely after ten days. Sputum examined routinely during that time. Showed one tubercle bacillus. Subsequent examinations all negative.

BILIRUBIN LIVER FUNCTION TEST*

1. Modification of the Method

BY I. R. JANKELSON, M.D.,† AND S. L. GARGILL, M.D.†

IN 1927 von Bergmann[1] and Eilbott[2] described a new liver function test in which a sterile solution of chemically pure bilirubin was used to raise the icteric index temporarily. The elimination of the excess of bile pigment by the normal and pathological liver was then determined by measuring the amount of bilirubin in the plasma before, five minutes after, and three to four hours after, the injection of bilirubin.

The original method as described by von Bergmann and Eilbott, and as employed by other observers[3, 4, 5] used the plasma for the estimation of the icteric index. From theoretical considerations plasma is to be preferred to serum. Van den Bergh[6] has shown, by a series of ingenious tests, that the precipitated red blood corpuscles contain no bilirubin, while the blood clot has a variable amount of it. We decided, however, to use serum instead of plasma, for the following reasons. When plasma is used a dilution of blood with sodium citrate becomes necessary. Furthermore to eliminate hemolysis, the bilirubin of the plasma is extracted by acetone. This requires several careful measurements of various solutions which can serve as sources of error. Moreover, a solution of bilirubin in acetone is very unstable, as it rapidly changes into biliverdin, which interferes with the test.

We tested several sera and plasmae, which were obtained simultaneously from the same normal subject and from patients with liver pathology. Our results were not very consistent or uniform. At times the serum gave a higher icteric index, at other times the plasma. The presence of hemolysis, or its degree, apparently was the greatest source of error. Plasma seemed more likely to be mildly hemolyzed, and hence more difficult to handle. From these experiments we concluded that the substitution of serum for plasma in this test simplified the technic and eliminated many sources of error.

In the original technic the plasma was compared colorimetrically with a standard solution of 1:6000 anhydrous potassium bichromate. In employing serum, we used as standard a 1:10000 solution of the same material. We have found, however, that it is difficult to match serum exactly to any given standard made from a chemical. The greatest source of error is the almost unavoidable minute amount of hemolysis. In order to avoid this, several known precautions were rigidly observed. The needles, syringes, and centrifuge tubes were absolutely dry; the blood was allowed to clot by standing and then was centrifuged at high speed. Nevertheless, some hemolysis was present in some of the samples. We then found that we could clear the hemolysis by adding 5 drops of N/10 hydrochloric acid to 5 c.c. of serum obtained with the above-mentioned precautions. This resulted in better matching of serum and standard and more correct estimation of the icteric index.

Further observations with the colorimeter showed a greater degree of accuracy when we eliminated entirely the standard solution, and used the serum of the patient obtained prior to the injection of the bilirubin as standard.

More recently we began to use the Bausch and Lomb "Scopometer Jr." instead of the colorimeter. Colorimetry and scopometry are quantitative methods for the comparison of various opaque solutions. Colorimetry depends upon matching the intensity of light on two sides of a disc. Scopometry depends upon the disappearance of a colored target upon introduction of a graded smoked glass. Scopometry gives a more definite end point than is obtainable by the matching of two yellow surfaces. The results obtained by several observers coincided more closely with a scopometer than with a colorimeter. We have found the scopometer simpler and easier to handle, less time-consuming and sufficiently accurate for clinical purposes.

We have also experimented with the van den Bergh test as a quantitative method for estimating bilirubin in serum and plasma. The results were consistently parallel with those obtained by the icteric index. Because the estimation of the icteric index is much simpler, less time-consuming, and requires no complex reagents or multiple dilutions with the possibility of the introduction of errors, we depend entirely on the icteric index.

TECHNIC OF BILIRUBIN LIVER FUNCTION TEST AS EMPLOYED BY US

Required Equipment:

Sterile chemically pure bilirubin, 0.05 gm.
Sterile 5 per cent. sodium bicarbonate solution, 15 c.c.
1 Sterile wineglass.
3 Sterile dry 20 c.c. syringes.
3 Sterile Wassermann needles.
3 Dry centrifuge tubes.
5 c.c. pipette.
N/10 HCL. solution.

The bilirubin (0.05 gm.) is dissolved in 15 c.c. of 5 per cent. sodium bicarbonate solution. The test is best done in the morning with the patient under complete metabolic conditions. A needle is introduced into the antecubital vein of one

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arm and 10 to 15 c.c. of blood is withdrawn. The serum of this sample is used as the standard for the patient at that particular time. Through the same needle the freshly prepared bilirubin solution is injected. Five minutes later 10 to 15 c.c. of blood are withdrawn from the vein of the other arm. The serum of this sample shows the highest elevation of the icteric index. During the next three hours the patient gets neither food nor water. At the end of three hours the last sample of blood is taken. This sample shows the ability of the liver to eliminate bilirubin. The bile indices of the three samples are determined by scopometry or colorimetry.

The formula by which the liver function is determined is as follows:

$$X = \frac{(c-a)\,100}{b-a}$$

where a is the scopometer reading of the 1st serum,
and b the scopometer reading of the 2nd serum,
and c scopometer reading of 3rd serum.

Normally this formula should give a reading of 20 to 30 per cent. or less. In pathology of the liver x=30 or above. The higher the reading, the greater is the impairment of liver function.

LIMITATIONS OF THE BILIRUBIN LIVER FUNCTION TEST

This test cannot be used in the presence of jaundice with bilirubinuria. It determines the excretory function of the liver only. No definite conclusion can be drawn as to the other multiple and complex liver functions. However, it is more sensitive than the other excretory liver function tests and is based on a sound physiological principle. There are no local or general reactions to the intravenous injection of bilirubin.

RESULTS

During the past year 120 bilirubin liver function tests have been performed. Of these the majority were done during the period of modification of the technic. The results of these tests were necessarily inconsistent and had to be discarded. With the development of our present technic our results have been more uniform and consistent with the pathology present.

We have studied 26 cases. Table I gives data on 21 of these cases. Five were patients without liver pathology, and showed an average retention of 24 per cent. at the end of 3 hours. Sixteen cases showed various forms of liver pathology. In six patients with cirrhosis of the liver an average retention of 51.7 per cent. was observed; 5 patients with carcinoma of the liver showed an average retention of 55.0 per cent. Other cases of liver pathology were not seen in sufficient numbers to report. However, in one case with a clinical diagnosis of cancer of the liver there was a 25 per cent. retention. At autopsy no sign of liver pathology was found. Four patients with chronic cholecystitis were studied. They showed an average retention of 24.7 per cent. One patient with a diagnosis of cholecystitis proved at operation to have a primary carcinoma of the gall bladder with metastasis to the liver and showed a retention of 56 per cent. High-grade retention of bilirubin was observed in patients with chronic nephritis without clinically demonstrable liver pathology. These cases will be investigated further.

TABLE I

CLINICAL DATA ON 21 PATIENTS, WITH AND WITHOUT LIVER PATHOLOGY

Case	Diagnosis	Retention of Bilirubin in per cent.	Average for groups
1.	Normal	20.0	
2.	Normal	20.0	
3.	Normal	20.0	
4.	Normal	18.4	
5.	Nephritic (No evidence of liver pathology)	41.7	
			24.0
6.	Cirrhosis of liver	77.7	
7.	" " "	71.4	
8.	" " "	33.3	
9.	" " "	38.4	
10.	" " "	36.5	
			51.7
11.	Carcinoma of liver	56.0	
12.	" " "	56.4	
13.	" " "	66.6	
14.	" " "	36.3	
15.	" " "	60.0	
			55.0
16.	Chronic cholecystitis	25.0	
17.	" "	20.0	
18.	" "	31.8	
19.	" "	22.2	
			24.7
20.	Carcinoma of stomach	25.0	
21.	Carcinoma of gall bladder	56.0	

SUMMARY

A simplified technic for bilirubin liver function test is presented and the results so far obtained seemingly allow of the following conclusions:

1. Bilirubin injected intravenously into normal individuals is rapidly excreted through the liver.
2. There is a definite bilirubin retention in diffuse liver pathology.
3. There is no abnormal retention of bilirubin in chronic cholecystitis.

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INTRACRANIAL ANEURYSM. REPORT OF A CASE*

BY R. G. HAHN, M.D.†

NUMEROUS cases of intracranial aneurysm have been collected and published. Rather recently Albright[1] has reported a series of these occurring in the proximity of the internal carotid artery and the circle of Willis. The writer's case falls in that group and is reported because it offers several unusual features: (1) rather pronounced cerebral symptoms; (2) absence of any definite evidence of vascular disease on physical examination; (3) absence of eye-ground changes; (4) postmortem evidence of extensive hemorrhage with surprisingly limited cranial nerve involvement.

A 58-year-old female patient (E. R. Med. History No. 36434) was admitted to the hospital, February 5, 1930, complaining of "pain above the left eye and over the left temple".

Her family history disclosed the death of her mother at 74 from a "shock". The marital history was negative. Her social life was very active and her work was confined to light housekeeping. There was no history of unusual habits.

In the past history were several uneventful childhood diseases. At the age of 23, when singing in public, she was unable to strike the correct note and because of this single incident, she gave up her attempts to sing. Eight years ago an hysterectomy was performed because of pressure causing retention. Since that time until the present illness she had enjoyed good health.

She had always been energetic, easily aroused by emotional stimulation and excitement, and stated, "My heart responds quickly to emotion and excitement." She was reliable, responsible, conducted her home efficiently, and was characterized as having strong likes and dislikes.

The present illness began during the mid-summer of 1928. She noticed easy fatigue and that more effort was required to maintain her activities. During that time she went on an automobile trip for several weeks, although she would have preferred resting at home. A discharging interior nasal sore annoyed her considerably. This cleared up spontaneously in a few weeks. She denied picking her nose and a companion stated that neither discharge nor odor were marked. At times her ankles felt puffy or swollen but presented no objective evidence of this.

One day in Sept. 1928, when stooping, she felt as though something snapped in the back of her left eye. This was followed by a feeling of marked weakness. A companion stated that she looked grey and ashen. At the same time inability to raise the left eyelid or move the left eye in any direction developed. She was confined to bed for the next three weeks. This paralysis involving the eye with external divergence persisted. Her appetite became very capricious. Late in Nov. 1928 she ate a very hearty meal, following which she had a bilious attack, accompanied by vomiting and marked weakness, confining her to bed for several weeks. Food seemed to have a peculiar taste or none at all and at times water had a sweet flavor. Movement of the left eyelid began to return, but the divergent squint remained.

During the following months weakness was frequently so marked that her gait was very unsteady and assistance in walking short distances was necessary. Emotional instability was very pronounced and crying spells occurred frequently. The causes for these usually were not apparent or were very trivial. The practical nurse, who had been with her continually, noticed increasing difficulty in satisfying the patient. Anorexia and indigestion were almost constant complaints. She had transitory hallucinations of smell and sight, and became very suspicious of people, including intimate friends. Six servants were employed and discharged in succession at short intervals, the victims of her whim or caprice rather than because of their inefficiency or negligence. She was unreliable and inconsistent in word and action; at times absolute denial would be expressed in the face of incontrovertible evidence.

At intervals she complained of stiffness and soreness in her neck, which would annoy her for intervals lasting from a few hours to several days. Restlessness and dreams caused many sleepless nights. The content of dreams was remembered vaguely.

During the three months prior to admission she received several osteopathic treatments for her sore neck without relief. There was no cutaneous hyperesthesia. Two weeks before admission her physician reported her blood pressure and urine normal. About that time she noted a sensation of pain over the left eye. It was not severe. Five days prior to admission she felt extremely weak and, while sitting in a chair, suddenly collapsed, becoming unconscious. Non-projectile vomiting ensued. Her husband noticed generalized twitchings but no convulsions. It was noted that in any facial movements the left eyelid remained closed while the right moved normally.

A report from her physician, who arrived soon after the incident, stated that there was absence of the radial pulse and no blood pressure reading could be obtained. The heart sounds were almost indistinct. Stimulants were administered hypodermically and shortly a faint pulse and low blood pressure readings were obtained.

During the next few days she was very much confused and she slept a great deal. At times she was semi-stuporous and very restless physically, both while asleep and awake. Apparently she was unable to recognize intimate friends. During the two days prior to admission improvement developed quite rapidly. At times, particularly during the night, she had delusions of sight and sound. She became more suspicious than ever of friends and members of the household. These delusions took the form mainly of mild persecutions or the melancholy attitude that they knew she was going to die and would not help her. She became more talkative and restless. Pain, which had been present intermittently over the left eye, became constant and from time to time was felt over the right eye, the lower occipital region and the neck. Soreness occurred in the lumbar region and lateral part of the left thigh, which was relieved by the application of heat or massage.

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During these days her blood pressure varied from 122 to 152 systolic; pulse 65 to 100; and temperature 99 to 102 degrees. Complete paralysis of the left upper eyelid and left ocular movements persisted. Although slight exertion made her tired, she was very restless and loquacious.

Physical Examination

Physical examination on admission disclosed a well developed and nourished woman lying in bed, restless, talking emphatically and replying at great length to a question that required only a brief answer. Frequently she placed her hands over her temples and forehead, complaining of a pulsating pain or feeling of pressure. She was moderately euphoric and well oriented in location but not in regard to time. The skull was symmetrical and the forehead rather prominent; hair grey; face rather flushed over the malar regions. The left upper eyelid was completely paralyzed, the eyeball fixed and staring in lateral divergence and turned down slightly. The pupil was dilated and unresponsive to light or accommodation. The right eye was normal in every respect and vision unimpaired in either eye. The left eye seemed slightly prominent compared to the right eye. The eye-grounds showed moderately hazy disc margins with slightly decreased cupping and moderate compression of the veins at the arteriovenous crossings. In the upper anterior part of the nasal septum bilaterally there was a slight crusted excoriation, more marked on the right than the left. The neck was definitely stiff to anteroposterior motion and any movement evoked pain in the head (low occipital) and templar regions) and in the back (lumbar region). Except for a ringing aortic second sound, examination of the heart was negative. The blood pressure was 144 systolic and 94 diastolic. The abdomen was negative except for a suprapubic mid-line scar extending to the umbilicus. Kernig's sign was positive bilaterally. Sensation was normal everywhere and equal on both sides to sharp and dull stimulation. Vibration and position sense were unimpaired. The remainder of the examination was essentially negative. The patient coöperated well.

Clinical Pathology

She had a moderate leucocytosis of 11,000 and 12,000; a very slight trace of albumin in the urine and a normal phthalein excretion. The Wassermann, Hinton and modified-Hinton tests of the blood serum were all negative. Lumbar puncture, the day after admission, showed bloody fluid under increased pressure and normal excursions in regard to pulse, respiration, and jugular compression. Initial pressure was 260 mm. of water. Eighteen cc. of fluid were removed with an erythrocyte count of 44,000 and a leucocyte count of 338 cells per cu. mm. The differential count showed a slight predominance of mononuclear cells, mostly lymphocytes. Globulin test, after high speed centrifuge, was 3 plus by Pandy's method and 1 plus by the ammonium sulphate method. The Wassermann reaction was negtive; gold sol and total protein were reported as unsatisfactory determinations.

A stereoscopic film of the skull showed no signs of increased pressure or any abnormalities.

Clinical Course

The patient was very restless and loquacious, demanding almost constant attention. Her appetite was very good. Mild sedatives furnished some rest, which was slightly disturbed by dreams. At one time she awoke and declared that "many clocks were ticking in the room".

Her hospital course, lasting six days, was as follows: The blood pressure varied from 140/68 to 152/76; pulse 70 to 100; temperature 99 to 101.6 degrees (elevations occurring in mid and late P. M.); respirations remained about 20.

Death occurred one morning without any premonitory or concomitant signs. She was alone in her room at the time.

AUTOPSY (HEAD ONLY)

On incision a blood-tinged serous fluid ran from beneath the tense and moderately adherent dura. Elevation of the frontal lobes revealed an extensive hemorrhage, which practically covered the base of the brain, running down into the spinal canal.

A pea-sized aneurysm or dilatation was found at the division of the left internal carotid artery into the middle cerebral and posterior communicating arteries. There was marked evidence of old hemorrhage with much organization and also much evidence of recent hemorrhage.

COMMENT

The sudden onset of syncope without marked convulsions, complete paralysis of the third and fourth left cranial nerves, with slow and only partial recovery of the former, and the development, without much consequent amelioration, of cerebral symptoms (delusions, hallucinations, easy emotional upsets), and a second attack 16 months later with practically identical symptoms pointed very strongly to the diagnosis, which was greatly reënforced by the bloody spinal tap. The blood pressure and examination of the peripheral arteries showed no abnormality, and the eye-grounds no evidence of antecedent or recent disturbance.

The patient's complaints of sensory disturbances over the ophthalmic area and the paralysis of the third and fourth left cranial nerves were relatively slight compared to the extent of the hemorrhages. The terminal hemorrhage was doubtless large enough to cause death from the increase in intracranial pressure. The sudden onset points to rupture with subsequent leakage. Neighborhood signs did not precede the first hemorrhage; the aneurysm per se was too small to cause any. The complaint of pain over the left eye prior to the second syncope may be called a neighborhood sign caused by leakage. Sense of smell and compression of the carotid on the affected side were not tested.

SUMMARY

1. A case of aneurysm of the internal carotid artery near the middle cerebral branch with marked cerebral symptoms is reported.

2. There was an interval of 16 months between the two attacks of syncope.

3. Practically no evidence of vascular disease was found on physical examination.

REFERENCE

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COMPARATIVE RESULTS OF TWO ALBUMIN TESTS

BY ROLAND A. BEHRMAN, M.D.†

THE chart herewith presented* shows comparative results of the nitric acid contact test and an adaptation of Folin's sulphosalicylic acid test on urine specimens examined at the home office laboratory of the John Hancock Mutual Life Insurance Company. In this series the results of analysis of 4000 consecutive urines are reported. All tests were performed by one worker, thus eliminating the confusing factor of several individual opinions as to exactly what amount of albumin was present.

NITRIC ACID TEST

The nitric acid ring or contact test for the detection of albumin in urine has been probably one of the most widely used of all tests for this purpose. For many years various insurance company laboratories have applied this method as the most practical for the approximate estimation of the quantity of albumin present. The scheme adopted in the past is a modification, proposed by Ogden, of the Heller test, wherein the quantity of albumin present is estimated by the density of the cloud of coagulated albumin formed at the junction of underlying nitric acid and urine and expressed by the use of such terms as "very slight trace," "slight trace," "trace," etc. It has, we think, always been recognized that this test, at best, was but an approximation. Heller's test as used in this series of analyses was done in the following manner: Two or three c.c. of clear (if possible) urine is placed in a conical urine or liqueur glass. From a dropper bottle allow about 1 c.c. concentrated nitric acid to flow gently down the side of a tilted urine glass so that the acid will underlie the urine. Let stand 5 minutes. Facing the light, observe contact zone against a dull black background, in the form of a cardboard, held at a slight angle, and record albumin clouds.

At the time it suited our purpose to use a somewhat arbitrary classification of these results as follows:

Negative: No cloud, being careful to exclude spurious rings.

Questionable: Probably negative, but contact zone confused by bacterial cloud, or heavy colored ring.

Very Faintest Possible Trace: Albumin ring very faint but perceptible on careful search.

Very Faint Trace: A very thin white ring visible as a haze, or faint cloudiness.

Faint Trace: A clean-cut ring, not visible when viewed from above against black background.

Trace: A ring, greater than "faint trace" and now visible as a translucent haze when viewed from above against black background.

Moderate Amount: A ring of moderate thickness which, when viewed from above against a black background, has now become opaque.

Large Amount: A ring of great thickness, a heavy dense precipitate, very opaque.

The "questionable" group for practical purposes, however, could just as well have been reported as negative and also the "very faintest possible trace" and "very faint trace" groups might have been combined.

SULPHOSALICYLIC ACID TEST

With the introduction of the Folin quantitative sulphosalicylic acid test it became possible to determine with relative accuracy the true albumin content. This test for albumin depends for its success upon the fact that sulphosalicylic acid will precipitate all the albumin present in urine. The method developed and adapted by Folin and at present used in this laboratory is as follows: Pipette 1 c.c. urine into a 30 c.c. test tube ringed at 25 c.c. Add 2% sulphosalicylic acid solution up to the mark; mix thoroughly, and let stand ten minutes to allow for complete precipitation; and compare with a set of similar tubes containing standard turbidities. The standard turbidities are originally prepared from sheep blood serum so diluted with 15% sodium chloride solution as to give a range of albumin dilutions from 0.01% to 0.10%. Simultaneously with the test on the urine, a c.c. of each of these dilutions is precipitated in a similar manner in similar test tubes, thereby giving a set of standard turbidities for comparison. (This laboratory has prepared, and is using, permanent gelatine suspensions of standard turbidities which compare very favorably with the sheep blood precipitate standards.) The test is free from various confusing factors met with in the nitric acid test.

The greatest source of error is apparent in the use of the word "trace" where quantities of albumin reported under this heading actually cover a range of from .01% to .35%. When one considers that .5% is approximately the upper (without dilution) and .01% the lower limit of accurate quantitative estimation, it seems clear that the word "trace" or any of its modifications is of little value as an indication of the amount of albumin in protein-containing urines.

In life insurance selection, groups of cases showing small quantities of albumin, provided microscopical examination is negative, are safer risks than those showing larger quantities. Thus a test showing more nearly the exact quantity of albumin present is of much value where a decision has, perforce, to be rendered on the result of analysis of usually no more than three specimens of urine and where the quantity of

*See next page.

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PER CENT ALBUMIN SULPHOSALICYLIC ACID TEST	HELLER NITRIC ACID TEST								TOTAL
	NEGATIVE	QUESTIONABLE	VERY FAINTEST POSSIBLE TRACE	VERY FAINT TRACE	FAINT TRACE	TRACE	MODERATE AMOUNT	LARGE AMOUNT	
.00	2283	135	18	21					2457
.01	121	78	51	159	42	3			454
.02	3	13	6	78	167	20			277
.03	1	1	1	16	98	75			192
.04			1	1	34	102			138
.05				1	8	90			99
.06						30			30
.07					1	40			41
.08					1	42	1		44
.09						18	2		20
.10						57	6	1	64
.11						3			3
.12						13		1	14
.13						15			15
.14						5	5		10
.15						14	6	1	21
.16						3	3		6
.17						4	3		7
.18						8	5	1	14
.19						1	4		5
.20						4	15	1	20
.21							1		1
.22							2	1	3
.23							3		3
.24							1		1
.25						3	1	1	5
.26							1		1
.27									
.28									
.29						1			1
.30						4	11		15
.31								4	4
.32						1			1
.33									
.34									
.35						1	1		2
.36									
.37							1	1	2
.38							1		1
.39									
.40							9	3	12
.41									
.42									
.43									
.44									
.45							1	1	2
.46									
.47									
.48									
.49									
.50							1	4	5

Also, not shown on Table, 1 moderate amt. gave 0.80%
5 large amt. gave 0.60 "
2 " " " 0.80 "
1 " " " 0.90 "
1 " " " 1.00 "

albumin present in each one may have an effect on the premium to be charged.

Much credit is due William T. Wright of the John Hancock Laboratory for his work in connection with the performance of the tests and in the preparation of the chart.

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MEDICAL PROGRESS

REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY

BY WILLIAM A. ROGERS, M.D.,* AND EDWIN F. CAVE, M.D.*

FOREWORD

IN this review of orthopaedic articles published during 1929 only those are included which seemed clearly to be of direct value either as suggesting new and sound conceptions of orthopaedic problems or presenting new and accredited methods of diagnosis and treatment. Many valuable articles have been omitted because of falling outside the scope of our review as thus outlined. We have drawn freely from the "Report of Progress in Orthopaedic Surgery" published in the *Archives of Surgery*, of which one of us was co-author.

TUBERCULOSIS

By repeated routine inoculations of urine into guinea pigs, Harris (*Brit. J. Surg.* 16:464-484, Jan. 1929) showed that tubercle bacilli were present in the urine in 37 per cent. of adults and 14 per cent. of children suffering from tuberculosis of the bone or joint. Although this bacilluria was unaccompanied by symptoms of renal tuberculosis, Harris adduced evidence to show that it signified a tuberculous lesion of the kidney and not simply the excretion of the tubercle bacilli by the kidney from the blood stream.

With improved antigens prepared from human and bovine tubercle bacilli, Thjtta and Gundersen (*Am. Rev. Tuberc.* 19:212-222, Feb. 1929) carried out complement-fixation tests in 325 specimens of blood serum. The authors felt that the test could not be compared with the Wassermann test in syphilis. Its value was not great in pulmonary tuberculosis, and no dependence could be placed on it in tuberculosis of the bones and joints or in tuberculosis of the skin.

OSTEOMYELITIS

(1) Spurrier (*Jour. Bone & Joint Surg.* 11:747-753, Oct. 1929), elaborating Phemister's observation, calls attention to the characteristics of sequestra in osteomyelitis of the articular ends of bone in the presence of a suppurating joint. These joint sequestra are clearly defined in roentgenograms from the adjacent living bone by their greater density and their perfectly smooth articular surface. The greater density represents the original or prelethal density, whereas the living bone, not isolated as the sequestrum, has become atrophic or rarefied through disuse imposed by the infection. The smoothness of the articular surface of the sequestrum is the result of complete digestion of its articular cartilage by the joint pus ferments and due to its inaccessibility to eroding granulations. The articular surfaces of the living bone, in contrast, are irregular since the cartilages are less easily digested because viable.

(2) The surgical anatomy in the region of the pubis and ischium is presented by McWhorter (*Surg. Gynec. Obst.* 49:205-212, August 1929). The author's approach to these bones for establishing drainage in osteomyelitis is given. The skin incision is along a line drawn between pubic tubercle and ischial tuberosity. The adductor minimus is split in the line of its fibers, the magnus, brevis and gracilis being retracted. This exposes the obturator externus muscle, springing from the rami, and brings the operator to a convenient position for dealing with the bone involvement.

(3) Wilensky (*Ann. Surg.* 89:561-731, April and May 1929) found the spine involved in only 9 of 578 cases of osteomyelitis, 1.5 per cent. The mortality rate was high, from 35 to 45 per cent. Cases in which the posterior neural arch was affected gave the best prognosis.

GONORRHEAL ARTHRITIS

Porter and Rucker (*J. A. M. A.* 92:1513-1514, May 4, 1929) treated five patients with acute gonococcal synovitis of the knee joint with serofibrinous or purulent exudates by means of aspiration and air insufflation. They said that the relief from local and constitutional symptoms had been prompt and lasting. In no case had there been an aftermath of partial ankylosis. A return to normal function has occurred within an average of twenty-three days.

ARTHRITIS

(1) Beryl Harding (*Lancet*, 1:433-434, March 2, 1929) demonstrated that muscles that wasted as a sequel to arthritis showed a great increase in oxygen consumption (8.3 cc. compared with the normal 4.6 cc. per one gram of muscle per one minute), whereas muscles that wasted as a sequel to disuse showed a normal consumption of oxygen (5.1 cc.). She suggested that this increase was the result of an increased catabolism, and that atrophy resulted from the failure of the reparative powers to keep pace with the undue tissue breakdown. In disuse atrophy there was no increased catabolism but simply an impairment of the synthetic powers of the affected muscles. Harding postulated that the increased catabolism might be due to an increase

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in the number of sensory impulses arising in the joint, and in proof of this she found that division of the posterior nerve roots supplying the arthritic joint prevented the muscle from wasting. The experiments were controlled.

(2) Pemberton (*Radiology*, 12:235-238, March 1929), in discussing the rationale of physiotherapy in arthritis, noted that the only undoubted influence of massage, heat and exercises was through their effect on the peripheral circulation. Exercise induced a systematic acidosis that led to alkalosis, while massage had no such influence on the acid base equilibrium.

(3) Haden (*J. Missouri M. A.* 26:1-2, Jan. 1929) believed that practically all cases of acute arthritis were due to infection. In chronic atrophic arthritis all evident foci of infection ought to be removed, usually in teeth, tonsils and sinuses. It should be remembered that arthritis represents the interaction of focus and patient. He said that many chronic infections occurred without arthritis. Much more could be expected clinically from the removal of an active infection than from the elimination of a mild, symptomless one. Chronic hypertrophic arthritis was not primarily an infectious disease. Foci of infection should be removed because they were harmful in themselves, not because their removal might influence the disease.

(4) Allison and Coonse (*Arch. Surg.*, 18:824-840, March 1929) examined the patients with chronic arthritis at the Massachusetts General Hospital on whom synovectomy had been performed. They considered the procedure particularly valuable in the proliferative type of arthritis; twenty-seven of the fifty patients studied had this condition. They advised against synovectomy in pyogenic or gonorrheal arthritis, unless perhaps in the chronic stage. In 95 per cent. of the cases pain was almost entirely relieved, and the patients retained nearly as much motion as before operation. The authors also advocated the operation of synovectomy in other joints than the knee under proper conditions.

(5) Wilson (*J. Bone & Joint Surg.*, 11:40-58, Jan. 1929) described the operation of subperiosteal posterior capsuloplasty in certain contractures of the knee together with the postoperative treatment. The operation consisted in exposing the lower end of the femur through a lateral incision in front of the biceps tendon, which was divided by a Z-shaped tenotomy. The iliotibial band was sectioned transversely and the capsule was stripped subperiosteally from the posterior aspects of the femoral condyles, particular emphasis being placed on thorough stripping of the intercondyloid notch. It might be necessary to make a second incision on the inner side of the femur to obtain complete stripping mesially. After the capsule was freed, the knee was manipulated into complete extension, care being exercised not to injure the external popliteal nerve. A split plaster cylinder was then applied to be worn one week. Exercises and massage were started in one week, and weight-bearing with a brace was allowed in eight weeks. The operation had been performed twenty-one times in fifteen patients. The flexion contracture was due to chronic arthritis in thirteen patients and was of traumatic origin in the remaining two.

(6) Analyzing the present status of the operation of synovectomy, Swett (*Am. J. Surg.*, 6:807-810, June 1929) expressed the opinion that it has a definite place in certain cases of chronic infectious arthritis, particularly of the knee. The operation should be performed only after the elimination of foci of infection and the establishment of a good state of nutrition. In the patients on whom he had performed the operation there had been a good immediate response, but in several there had later been a relapse and subsequent involvement of other joints.

(7) Experimenting on the reaction of joints to blood and foreign body infection, Key (*J. Bone & Joint Surg.* 11:705-738, Oct., 1929) working with rabbits and employing citrated rabbit blood and India Ink (carbon) injected into the knee joint, finds that these two agents are removed from the joint cavity after producing marked joint changes. The process took place as follows: (a) A cellular exudate into the joint, the cells engulfing the particles of carbon and injected blood cells and escaping back through the synovia; (b) many of the red cells and some carbon passed out of the joint through the synovia; (c) some of the carbon and red cells became enmeshed in fibrin clot adherent to the synovial lining of the joint. This became organized, covered with synovial cells, and thus was excluded from the joint cavity. The synovia became thickened in the loose areas of the joint surface—partly through surface layer cell proliferation and the formation of villa, and partly through cellular infiltration in the subserous connective tissue.

TEMPOROMANDIBULAR JOINT LESIONS

One of the chief obstacles to the diagnosis and treatment of lesions of the temporomandibular joint is the difficulty of showing the region clearly in roentgenograms. Bishop (*Am. J. Roentgenol.* 21:556-563, June 1929) made a study of the normal and pathologic anatomy of this articulation and of its varying appearance in roentgenogram. He described a method of making a roentgen examination of the joint which minimized distortion and ought to lead to more accurate diagnosis.

BONE AND JOINT ANOMALIES

(1) *Hip Anomalies.* Jansen of Leiden, Holland (*J. Bone & Joint Surg.* 11:461-531, July 1929) explains the large number of hip anom-

alies (coxa vara, coxa fracta, Legg's coxa plana, coxa valga, slipping epiphysis, and malum coxae) on the basis of a congenital origin.

The wide pelvic girdle in man makes the acetabula in utero liable to varying degrees of flattening or widening. These acetabular changes, seen in roentgenograms of developing cases, set up altered stresses in the normally shaped femoral head and neck which result in the abnormal growth seen in the above clinical conditions. The extent of the effect of these altered stresses on the growth of the hip depends upon the degree of softening of the skeletal structures (nutritional), upon the intensity of the acting forces (traumatic), and upon the degree of alteration of the stresses.

This mechanistic theory of Jansen is advanced by him with careful clinical, anatomical, pathological, and roentgenographic evidence. Graphic analyses of the mechanism of the conditions according to the principles of mechanics are given.

(2) *Congenital Dislocation of the Hip.*—Putti (*J. Bone & Joint Surg.* 11:798-809, October 1929) recognized as a world authority on congenital dislocation of the hip, states that the hope for the future in the management of this difficult problem lies in early diagnosis and treatment rather than in open reduction. He pleads for early diagnosis; the watchful maternal eye will frequently detect a difference in the two hips in the early months of life. Such a suspicion demands x-ray examination when the mother brings the child to the doctor for confirmation. X-ray signs are: (a) a smaller or absent epiphyseal nucleus on the affected side (if child over 6 months); (b) the femur is higher and more distant from the acetabulum; and (c) the acetabulum is sloping.

Treatment of the child a few months old simply entails keeping the limbs abducted for 8 to 12 months. A triangular cushion covered with waterproof strapped between the limbs holds the limbs in this position. Dr. Putti finds that the disabling deformities so commonly found in the older cases are avoided. Reduction is spontaneous or follows the simplest manipulation, often carried out by the mother.

(3) *The pre-hallux or accessory scaphoid* (Kidner, *J. Bone & Joint Surg.* 11:831-837, Oct. 1929) is discussed from the standpoint of its causative relation to weak foot. The direction of the line of force of the tendon of the posterior tibial muscle is so changed through the presence of this bone that it ceases to act as an effective supinator. This alteration in function is due to the circumstance that the tendon always attaches itself to this bone instead of, as normally, to the under surface of the scaphoid. And since the accessory scaphoid is found medial and superior to the under surface of the scaphoid, the effectiveness of the muscle is decidedly reduced. Furthermore, since adduction of the foot sometimes brings this supernumerary bone into close and painful proximity with the internal malleolus, it is quite possible that abduction becomes a habit. The author is justified in urging more frequent x-ray study in weak foot.

(4) *Intrapelvic Protrusion of the Acetabulum.*—Doub (*Radiology*, 12:369-376, May 1929) reported eight cases of intrapelvic protrusion of the acetabulum. It was bilateral in five cases and unilateral in three. The duration of symptoms was from one to seven years, with an average of three and one-half years. Clinically, the most common observation was restriction of, or absence of, abduction of the leg, and next was restriction of flexion and hyperextension. The ages varied from 16 to 53. The roentgenograms showed a deepening of the acetabulum with thinning of the mesial and inferior wall. The head of the femur was, therefore, more deeply buried, and the greater trochanter was somewhat higher and closer to the ilium. As to the etiology, he suggested that the condition could best be explained by some general disease in early life, causing softening of the bones, with resulting deformity, and that the osteo-arthritis so often found was a later stage in the process.

BONE TUMOR

(1) Geschickter and Copeland (*Arch. Surg.* 19:169-271, Aug. 1929) present the original view that giant cell tumor of bone and osteitis fibrosa are either closely allied phases of bone repair or parts of the same phase. This view is based upon clinical, pathologic, and anatomic analysis of over 400 cases of bone tumors in this group; and upon their embryologic studies, whereby they believe that the giant cell tumor represents an exaggerative vascularization and canalization phase of bone histogenesis and the usual bone cyst form of osteitis fibrosa, a healing of the giant cell tumor reaction. Bloodgood, who writes a foreword to the article, believes that the giant cell tumors and osteitis fibrosa are fundamental in all pathologic conditions of bone, representing a reaction to some insult to the bone of which trauma seems always to be an element.

(2) Under the title, "Experimental Sarcoma of Bone," Connor (*Arch. Surg.* 19:794-807, Nov. 1929) describes his laboratory observations of the development and growth of sarcoma of bone in chickens. Having obtained dried tumor tissue taken from an endothelioma of a chicken discovered by J. A. Murray, director of the Imperial Research Fund, London, all suspensions were injected into chickens of the same strain and the tumors obtained. Using the resulting tumor tissue for fresh cell suspensions, the experiments and observations were made with the end in view of: (1) seeing how near an approach to Ewing's endothelioma of bone could be obtained; (2) observing the growth of tumor of the bone marrow from its inception; and (3) examining the

reaction of bone itself to cells of known origin, by which some light might be thrown on the type of cell capable of bone formation. A tumor, resembling in some respects both Ewing's endothelioma of bone and osteogenic sarcoma as seen in man, was obtained. This tumor occupied the marrow cavity and was osteolytic until it reached the subperiosteal space by way of the nutrient foramina or haversian canals when it formed radiating spicules of bone. It was shown that the Rous fibrosarcoma would likewise form bone when confined beneath periosteum. In this work, furthermore, it developed that both endothelial and fibroblast cells were capable of differentiating into osteoblast cells under the proper physical and chemical conditions.

LOOSE BODY OF INTERVERTEBRAL DISC

Two cases of loose body of the intervertebral discs are reported by Dandy (*Arch. Surg.* 19: 660-672, Oct. 1929). These were removed at laminectomy and found to have the same microscopic appearance as the loose body of the knee in osteochondritis dissecans. In both cases the lesion occurred in the mid-lumbar region, was apparently due to trauma, was not possible of diagnosis by x-ray, and was clinically interpreted as being carcinomatous metastasis. The loose bodies lay in a cystic cavity, filled with serous fluid, and caused a protrusion into the spinal canal which resulted in blocking and pressure on the cauda equina sufficient to produce motor and sensory paralysis, loss of reflexes and loss of sphincter control. Both patients fully recovered following operation, which consisted in removal of the cartilaginous body.

BONE LENGTHENING

Carrell (*South. M. J.*, 22:216-221, March 1929) reviewed the results in twenty-eight patients on whom he had performed the operation of leg lengthening described by Abbott. In twenty-one patients the tibia and fibula were lengthened, in seven the femur. The author did not consider the operation difficult or unusually shocking, but it was necessary to observe meticulous care both in the technic of the operation and during the long after-care.

FRACTURES

(1) *Fractures from the Operative Point of View.* In discussing the open treatment for fractures, Henderson (*Radiology*, 12:214-223, March 1929) pointed out the dangers of the method when employed improperly. He listed the fractures of the lower extremity most satisfactorily treated by the operative method as follows: (a) fractures of the astragalus with marked displacement; (b) Pott's fracture with the internal malleolus broken off at a high level; (c) refractory fractures of the ankle; (d) spiral oblique fractures of the lower third of the tibia; (e) fractures of the patella; (f) most fractures of the shaft of the femur in adults; (g) fracture dislocations of the hip; (h) slipped epiphysis of the upper end of the femur in children.

Of the injuries of the upper extremity, he considered that the following often required operative intervention: (a) overriding fractures of the metacarpals; (b) badly comminuted fractures of the scaphoid; (c) fractures of both bones of the forearm; (d) most fractures of the lower third of the radius other than Colles's fractures; (e) most fractures of the head of the radius; (f) fractures of the olecranon process; (g) epiphyseal separation at the lower end of the humerus with anterior displacement of the lower fragment; (h) fractures of the surgical neck of the humerus with overriding; (i) fracture dislocations of the head of the humerus.

(2) *Colles's Fractures.* Grasby and Trick (*Brit. M. J.* 1:391-392, March 2, 1929) also reviewed the results of fifty Colles's fractures two years after the injury. They concluded that a good result invariably followed a good reduction, and that if displacement persisted, the result was almost as invariably unsatisfactory on account of a traumatic arthritis of the radio-ulnar joint. Nonunion of the styloid of the ulna did not affect the functional result.

(3) *Compression Fractures of the Spine.* Davis (*J. Bone & Joint Surg.* 11:133-156, Jan. 1929) considered that the treatment for compression fractures of the spine should aim at correction of the kyphotic deformity and securing proper alinement just as reduction was sought in fractures elsewhere. He had been able to obtain this by actively hyperextending the patient on a Bradford frame or plaster shell, or when the posterior spinal arch was intact, by careful manipulative treatment, forcing the spine into hyperextension followed by the application of anterior and posterior plaster shells. A roll in the form of a life preserver was attached to the posterior shell under the point of the kyphos. The patient was kept in the plaster shell for seven weeks, after which a Taylor back-brace was applied, to be worn in bed for two weeks, followed by gradually increasing weight-bearing.

(4) *Fractures of the Lateral Tuberosity of the Tibia.* Cubbins, Conley, and Seiffert (*Surg., Gynec. & Obst.* 48:106-108, Jan. 1929) called attention to the increasing frequency of fractures of the lateral tuberosity of the tibia, which they thought might well be designated "bumper" fractures, owing to the fact that they so commonly resulted from collision with an automobile bumper. Forcible abduction of the tibia on the femur was the common mechanism. Improper treatment resulted in a loose joint with genu valgum and permanent disability. If the tuberosity was widely separated, it might be reduced manually or with the aid of a mallet. If the fragments could not be replaced, an open

operation should be performed. They had found by arthrotomy that in some of these cases the lateral meniscus was torn loose and its outer rim was displaced down between the fragments, where it prevented reduction. The authors considered it a mistake to remove the meniscus, as its broad cartilaginous surface would surely help to render the joint more stable in case of resulting irregularity of the upper joint surface of the tibia. Replacement of the cartilage was the better treatment.

(5) *Astragalectomy for Fracture of the Astragalus.* Graham and Faulkner (*Ann. Surg.* 89: 435-438, March 1929) advocated astragalectomy in fractures involving the body of the astragalus with displacement when it was impossible to reduce the fragments. They believed that a stable, painless ankle with from 20 to 25 degrees of motion could be obtained by the operation, and that this was to be preferred to the stiff and painful ankle which commonly resulted without astragalectomy.

(6) *Costovertebral Luxation.* Stewart and Warren (*J. A. M. A.* 92:605-607, Feb. 23, 1929) were able to find records of only ten cases of costovertebral luxation in the literature. They had treated a patient in whom the first rib was dislocated downward following a severe injury. Anesthesia was present around the inner condyle of the humerus and along the ulnar surface of the forearm and over the ring and the little finger. The dislocation was reduced by operation, which showed the head of the rib displacing the lower portion of the brachial plexus. The sensory disturbance disappeared immediately after operation.

(7) *Fracture of the Internal Epicondyle of the Humerus with Displacement into the Elbow Joint.* Cotton (*J. Bone & Joint Surg.* 11:348-352, April 1929) reported three instances of avulsion of the epiphysis of the internal epicondyle, complicating dislocations of the elbow, in which disturbance of the motor and sensory function of the ulnar nerve followed attempts at reduction. In each of the cases the fragment of bone was found lying in the elbow joint, and tight bands of fascia from the displaced epiphysis were found pulling on the ulnar nerve. The treatment consisted in removal of the displaced fragment and release from tension on the ulnar nerve. Practically complete restoration of nerve function resulted in all cases. The author states that he had seen twelve instances of this injury.

(8) Brentnall (*Brit. M. J.* 1:1113-1115, June 22, 1929) reported the operative results in two patients who had sustained fractures of the internal epicondyle of the humerus with displacement of the fragment into the elbow joint where it blocked movement. Both cases were unusual, because there was no associated lesion of the ulnar nerve, and the elbow had not been dislocated. This was contrary to the views of Cotton and of Fairbank, both of whom believed that the displacement of the epicondyle was due to the manipulation of a dislocated elbow in the attempt to secure reduction. Brentnall suggested that the injury was caused by an abduction strain and was in reality a rupture of the internal lateral ligament of the elbow.

PARATHYROIDS

Richardson, Aub, and Bauer (*Ann. Surg.* 90:730-741, Oct. 1929) reported a case of apparent osteomalacia with aseptic cavities throughout the bones suggestive of osteitis fibrosa. The patient was a man, aged 34, who presented marked muscular weakness, gave a history of multiple fractures and presented x-ray pictures showing marked diminution of calcium throughout the skeleton. Studies of the calcium and phosphorus revealed: (1) markedly elevated serum calcium; (2) greatly increased calcium secretion; (3) reduced serum phosphorus; and, (4) increased phosphorus excretion. By removal of the parathyroid glands the patient was greatly benefited. His muscle tone improved; there was a greater increase in calcium deposit in the bones. He sustained no further fractures and was able to return to work.

PAGET'S DISEASE

Bascourret and Decourt (*Rev. neurol.* 1:606-621, April 1929), studying ten cases of Paget's disease, found in each case, comparing the affected and the nonaffected limbs, differences suggesting changes in the sympathetic nervous system, increased local temperature, hyperpulsatility of the arteries, etc. From this they argued that the bony changes are due to disturbances in the trophic nerves, particularly the tractus intermediolateralis, as in tabes.

INFANTILE PARALYSIS

(1) Aycock (*J. Prev. Med.* 3:245-278, May 1929) in a study of the seasonal and climatic fluctuations in the incidence of infection from poliomyelitis, reached the conclusion that these fluctuations are due to changes in the resistance of the subject. He does not consider the dose or the virulence of the virus as important factors. As evidence for postulating such geographic and seasonal variations in the subject's resistance or "autarcesis", as he terms it, the author cited variations in growth and changes in weight of various organs with different seasons and climates. Such changes, in his opinion, produce a physiologic imbalance, making the subject less resistant to the virus.

(2) McEachern and his co-workers (*Canad. M. A. J.* 20:369-371, April 1929) reported their results in administering poliomyelitis convalescent serum during the Manitoba epidemic in 1928; seventy-four of 161 patients received this serum. Fifty-four received no serum and thirty-three received it after the onset of paralysis. Of

fifty-seven patients receiving an average of 25 cc. of the serum intramuscularly, in the preparalytic state, 93 per cent. recovered and there were no deaths. Of the fifty-four patients receiving no serum, 26 per cent. recovered, 11 per cent. died and the remainder were paralyzed. They concluded that convalescent serum was of value when given during the preparalytic stage, and that the intramuscular route was safe and efficacious.

(3) Diveley (*J. Bone & Joint Surg.* 11:100-122, Jan. 1929) studied 185 cases of poliomyelitis developing during an epidemic in Kansas. Eighty-five of the cases were carefully followed by the author for two years. He concluded that by early drainage of the spinal canal and intravenous or intramuscular administration of immunized horse serum, or better, antipoliomyelitic (human convalescent) serum, many dire results can be prevented. Also careful treatment during the second stage of the disease will diminish immeasurably (90 per cent.) the resulting deformities. He substantiated his observations with experimental work on monkeys.

(4) Rhoads (*J. Exper. Med.* 49:701-704, April 1929) injected intracerebrally into a monkey the virus of poliomyelitis which had been preserved in glycerol eight years. Eight days later there were marked symptoms of extensive involvement of the central nervous system. The animal was killed the following day, and marked degeneration of the anterior horn cells was demonstrated. The virus from the first monkey was passed through four other monkeys in succession, and in all the disease developed without the virus losing any of its potency. The longevity of the virus suggests to Rhoads the improbability of the streptococcus as the inciting organism in the disease.

(5) Stewart and Rhoads (*J. Exper. Med.* 49:959-973, June 1929) inoculated eight monkeys intradermally with repeated small doses of living, active poliomyelitis virus. A second group of eight monkeys were given repeated small inoculations of the same virus subcutaneously. The period of immunization lasted from three to five months. During this period no signs suggesting poliomyelitis were found. The monkeys were bled, and the neutralizing power of the serum on poliomyelitis virus was noted. Subsequently, the monkeys were given intracerebral infections of poliomyelitis virus. The serums of all the monkeys, with the exception of one in which subcutaneous infection had been attempted, completely neutralized the virus. The degree of immunity was only relative, since one case immunized intradermally and four of the cases immunized subcutaneously exhibited definite poliomyelitis. The authors stated the belief that a greater degree of immunity is conferred by intradermal than by subcutaneous injections.

OPERATIONS

(1) *Utilization of Long Tendon of Biceps to Prevent Recurrent Dislocation of the Shoulder.* Nicola (*Am. J. Surg.* 6:815, June 1929) described a new operation for recurrent dislocation of the shoulder in which he utilized the long tendon of the biceps muscle to serve as a check ligament. He divided the tendon 1½ inches (3.8 cm.) above the point where it dipped down to pass under the pectoralis major muscle, freed the proximal end well up into the bicipital groove and passed it through a tunnel drilled in the head of the humerus to be resutured, at the point where it emerged, to the divided distal end of the tendon. The arm with the elbow flexed to an angle of 45 degrees was bandaged to the side for three weeks, after which active use was permitted.

(2) *Experiments with Foreign Materials to Stimulate Epiphyseal Growth of Long Bones.* Bohlman (*J. Bone & Joint Surg.* 11:365-384, April 1929) reported experiments performed with foreign materials in the region of the epiphyseal cartilage plate to stimulate longitudinal growth of bones. Pegs of various metals, wood, ivory, autogenous bone, insoluble salts, essential oils and vaccines were used as foreign materials. The author concluded that there was no increased growth in length of bone in any of the animals. In many cases, a marked shortening resulted.

(3) *Spinal anaesthesia for orthopaedic operations* requiring 50 minutes or less and concerned with upper extremity and neck regions as well as lower extremity and back is placed upon a scientific basis by Koster and Kasman (*Surg. Gynec. Obst.* 49:617-630, Nov. 1929). In their laboratory and by clinical investigations they show that this method is safe, and that diffusion of standard doses of neocaine to medulla apparently does not affect the respiratory center. Their work would indicate that this drug has a sedative action on sensory nerves only—not interrupting the motor impulses. Fall in blood pressure seemingly results from splanchnic dilatation and the fatalities of spinal anaesthesia have resulted from this through cerebral anemia and not from medullary paralysis. The Trendelenburg position will, according to these workers, entirely obviate the possibility of this complication. This work lacks extensive confirmation in other clinics and by other workers, and the technic resulting from their work, while undoubtedly safe in their hands, should be adopted with reserve at the present time.

(4) *Venous Ligature.* Ligature of great arteries, made necessary either by traumatism or during the course of an operation, immediately brings up the question of simultaneous ligature of the accompanying vein. Brooks, in his extensive article on "Therapeutic Venous Obstruction" (*Arch. Surg.* 19:1-23, July 1929) believes.

if the popliteal or axillary artery be ligated, that ligature of the vein is likewise indicated in an effort to prevent gangrene. In ligature of the femoral and brachial arteries ligation of the vein, he believes, makes little difference. Indiscriminate ligation of the vein is to be avoided since it is not indicated frequently (except in popliteal and axillary artery ligature) and can be resorted to later if careful watch of the extremity reveals signs of impending gangrene.

PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE A. M. A.

2. North Central States

MRS. JAMES BLAKE

According to the Constitution and By-laws of the Auxiliary to the American Medical Association the Organization program is carried on by the active work of the Vice-Presidents. Mrs. Southgate Leigh of Norfolk, Va., is first Vice-President and automatically Chairman of Organization. Due to her location on the map the Second Vice-President finds herself interested in the destinies of the North Central group of states.

Looking backward, with pleasant memories to Detroit, and forward with delightful anticipations to Philadelphia we find this group of states all doing something of common interest.

In the January *Journal of the Indiana Medical Society*, the Auxiliary President stresses the importance of more constructive work on the part of her organized County groups. "Physicians' wives", she says, in her New Year's Address, "hold an enviable position in being privileged to have a part in a world-wide health program, and I would urge every physician's wife, to bring before other women *dependable* knowledge, and a just appreciation of the real spirit and purpose and actual achievements of the medical profession." So from Indiana we know we are to have constructive work during this year. Physicians as a class are not prone to participate in legislative matters but when four distinctly separate bills, which affect the profession, directly, are presented during one session of a State's Legislature, it is time to be up and doing.

Such is Indiana's situation this year and the doctors of the 7th district have thought it worthwhile to *instruct* their Auxiliary members on these subjects that their influence may be *properly* used. The Indiana *Journal* never fails to give the Auxiliary space, and it is little wonder the Indiana women are up and coming, when they have such Editorial Notes to enlighten and guide them in their constructive Program work, as one finds in this same *Journal*.

Kansas is slowly getting a few things accomplished. A world-wide depression has rendered prophets quite fameless abroad as well as at home, but the Doctor's wife in Kansas is coming into her own, and we prophesy that the Auxiliary will climb to the top due to the indomitable spirit of the leaders in that state.

In Illinois the motto might well read—"Builders we are, and builders we must ever be. Builders, not in stone that shelters life, but builders in life." We find good constructive programs—of well-balanced educational value, we find a *Journal* ever ready to broadcast Auxiliary news, and best of all we find a healthy Organization line-up, and an Advisory Board from their Medical Society. Several of their County groups are having their members get busy with the "Health Audit Program."

One project of worthy mention comes from Vermillion County on the Eastern boundary of the state. The County Auxiliary put on the Health Institute in Danville last November. A member from every agency in the county working out any kind of a Health program, was included in the personnel of the speakers. It was for just one day, but it was worth 365 as a rouser for Auxiliary work. It really was sort of a Christmas Seal Campaign opening, a get-together of Club Women, and P. T. A. groups in the County. And what a wise idea for a Medical Auxiliary to have the headlines in the plans for such a "Health Day."

Wisconsin, Iowa and South Dakota are among the latest States to join the National Auxiliary. Organization is the keynote for their work, and the National Study Envelopes are offered as program material. Right now if the modern Doctor's wife needs to get one thing more than another from her organization, it is the knowledge of what is going on in this world; especially the world of Medicine. Women are discriminating more carefully in the clubs they are joining. They are asking what membership will mean to them, what they will get out of it. For that reason the subjects for study should be more carefully chosen, and the roll call should be made to count for something more than jokes and quotations from forgotten poets. It isn't a pleasant feeling for a busy mother who rides miles to a meeting to say when it is all over—"I can't say I know any more now than when I started." And so we find these three states getting themselves established on a firm foundation, with the National program envelopes scattered far and wide to aid and encourage Auxiliary members, already in, and prospective members.

Montana and North Dakota are debating pro-and-con but as Mrs. Hoxie said in her Detroit report—"I believe it will be a mistake from now on to organize a new state, unless it appears reasonably certain that there is interest enough among the Doctors who want the Auxiliary, so they will foster it and stand back of it." And so we leave Montana half-hearted about forming an Auxiliary, and North Dakota in the air.

We find Michigan giving intelligent coöperation with state and county officials. Women like men are interested in the improvement of civic affairs and healthful living and are realizing that they need to be armed with a definite knowledge of health laws and public health practices.

Missouri is in a very healthy condition. We find that Mrs. A. B. McGlothan, the President-Elect of the Woman's Auxiliary to the American Medical Association, will attend President Hoover's White House Conference for Child Health and Protection to be held in Washington, D. C., February 19 to 21. Mrs. G. H. Hoxie, the President for last year, will also attend the White House Conference.

(Continued to Page 566)

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17111

EDEMA OF THE FACE AND ANKLES

MEDICAL DEPARTMENT

A ten year old girl of American parentage entered July 8. The chief complaint was edema of the face and ankles. The history was given by the mother and was considered reliable.

The birth was an instrumental delivery. The child was not healthy during her first year. She was not breast fed but was given cow's milk, not pasteurized or boiled. Her development was retarded by whooping cough at six months. She also had pneumonia at six months, followed by a relapse. She was ill for two months. She had repeated colds and sore throats not relieved by tonsillectomy and adenoidectomy at four years. Sore throats with fever had aways been frequent. She had coughs all winter, usually clearing up in summer. Her bowels had never been regular. She had always been underweight.

Her father was thought to have tuberculosis. One of his sisters died of consumption. Three of the mother's near relatives had died of "dropsy".

A month before admission the child was nauseated, vomited and started to run a fever. There was no evidence of upper respiratory infection and no rash. No physician was called, so the temperature is not known. The urine was reddish for two days. There was no edema. After four days in bed she returned to school, but continued to be listless. During the next two weeks she had two or three attacks of vomiting. On June 30 she went swimming and was severely chilled. On July 2 edema of the face, feet, ankles and abdomen appeared and the child complained of constant stomach ache. The swelling of the face, feet and ankles had steadily increased. For two weeks she had had nocturnal enuresis for the first time.

Clinical examination showed a well nourished child who did not appear acutely ill. The face and eyelids were edematous. The skin and mucous membranes were normal in color. The pharynx was injected. The lymphoid tissue on the posterior wall was swollen and red. The tonsillar glands were enlarged. There were a few scattered coarse râles in both lungs. The heart was not enlarged. There was a systolic murmur at the apex and the pulmonary area. The blood pressure was 132/70. The abdomen was normal. There was slight pitting edema of the hands and forearms and moderate pitting edema of the lower legs, ankles and feet. The pupils and reflexes were normal.

Fifty-four urine examinations showed the specific gravity to be from 1.010 to 1.025. There was albumin at all of fifty-five tests, a trace to a very large trace at all but four. The sediment showed red blood cells in forty-nine specimens and leukocytes in fifty-three. A centrifuged specimen at admission was loaded with red cells and leukocytes and showed many casts. None of the specimens was taken by catheter. The renal function July 19 was 60 per cent. The blood showed 13,800 to 10,150 leukocytes, 78 to 66 per cent polynuclears, hemoglobin 85 to 60 per cent, reds 3,430,000 to 3,980,000. Two smears were normal. A Hinton test was negative. The nonprotein nitrogen was 34 at entrance, 45 July 28, 49 September 12, 63 October 2. The cholesterol was 416 milligrams per 100 cubic centimeters at admission, 208 July 28, 305 September 12, 233 October 2.

The temperature ranged from 97.2° to 100.1° until September 15. Later it was from 98.1° to 101.6°. The pulse was 65 to 140. The respirations were 21 to 37.

A urological consultant reported August 9, "Today the left side of the abdomen seems more prominent than the right and shows pitting edema." August 15 he reported, "The uroselectan test, though not entirely satisfactory in this case, shows a normal left renal pelvis. The patient seems to be getting better."

X-ray examination showed considerable thickening of the lining membrane of the ethmoids; no retained secretions. August 6 the kidney outline was rather indistinct on the left but appeared to be large. On the right the kidney region was obscured by overlying intestinal gas. There were no shadows suggesting urinary stone and no calcified glands. A pyelogram showed the shadow of the left kidney pelvis fairly well. It was apparently normal in size and shape. The indistinct outline of the ureter was also visible. On the right side the pelvis was not visible.

For the first week the patient was comfortable and lost all but a slight degree of edema. In the next three days she gained three pounds. During the following four days she lost four pounds. On July 26 she complained of left abdominal pain. The abdomen was slightly distended and showed shifting dullness. There was questionable dullness with questionable suppressed breath sounds at the left base. The blood pressure was 162/105. Four days later the urine was loaded with leukocytes. The systolic blood pressure varied from 130 to 150. She gained two pounds August 11, and continued to gain steadily for the next five days. There was fluid in the abdomen and the left chest. When the fluid intake was limited to 33 ounces she lost weight for three days, then gained again. The

fluid in the chest and abdomen was unchanged. August 30 she developed a cough. September 9 she complained of pain in the left axilla. September 10 she gained three pounds and a half. The blood pressure rose steadily. September 15 it was 190 and she was vomiting and complaining of headache and abdominal pain. The morning of September 16 she had twitching of the muscles and later several convulsions, increasing in severity until she was given hydrous magnesium sulphate intravenously. The systolic blood pressure then dropped from 182 to 140 and she was free from convulsions for three-quarters of an hour. Then they recurred. She was again given hydrous magnesium sulphate intravenously. The systolic blood pressure fell from 160 to 120. She felt much better and was fairly rational, but still unable to see. The temperature was 101.6°. The following day she felt somewhat better and was more rational but could see only poorly. Hydrous magnesium sulphate was given intravenously. The blood pressure fell from 140 to 128. The temperature was still elevated but was dropping. For the next five days the patient felt well, the temperature was normal, the blood pressure fell and she lost weight. September 26 she began to gain again and September 27 to run a slight temperature and to cough.

Examination showed signs of fluid at the left base and possible bronchitis of both lungs. She looked much worse.

At an X-ray examination September 30 the costophrenic angle on the left was not visualized. The diaphragm was not well seen. A triangular area in this region with its highest point in the axillary line was suggestive of fluid. The right diaphragm and costophrenic angle were not remarkable.

From this point she gained weight steadily. October 2 she complained of headache and vomited. She was given hydrous magnesium sulphate intravenously. Again the blood pressure fell from 140 to 126. She continued to have slight temperature. The cough was rather severe. Sonorous râles developed in both lungs. October 10 she weighed more than at any previous time. The blood pressure was 110/78. October 11 she died.

Clinical Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

That is the sort of history we get from almost any child whose parents have been attentive. It does not point to anything I know in the way of a diagnosis.

I am a little tired of pointing out that we are not given the important point in a family history of tuberculosis, namely, was the child exposed? If not, the father's tuberculosis does not make any difference. If he had tuberculosis while the child was growing up in the same house it is of great importance.

"Getting chilled" is another favorite fallacy as the cause of disease. It comes next to "indiscretions in diet". What we ought to say is that we have a disease and the disease gives us a chill instead of saying we have the chill and the chill gives us a disease. A person who has fever and is in poor condition is apt to have a chill as a symptom of his condition.

Nocturnal enuresis, of course, suggests nocturia, suggests increased secretion of urine at night. The clue in our minds, I take it, is some form of kidney trouble, nephritis or nephrosis or both. Many people would think the chill had something to do with it. I believe it did not.

NOTES ON THE PHYSICAL EXAMINATION

That systolic blood pressure is a little high at her age. But it may have been due to some emotional or temporary cause. One would not care to draw any important conclusions from that unless it was taken a good many times.

At her age it is not so important to have catheterized specimens of urine as it is in older patients. Vaginal secretions are scanty.

The renal function of 60 is a fact we must face, though it is a little puzzling.

One of the reasons that I believe the chill did not cause the trouble is the presence of that anemia, which cannot possibly have come on in the short time since the chill. It must have been there for a considerable period, and is probably due to the same cause as the edema.

The cholesterol is distinctly elevated at two tests. That again raises the question of nephrosis.

Presumably the renal pelvis was normal on both sides by x-ray and we have no reason to suspect pyelitis or any "surgical" lesion. We can confine our attention to nephritis and nephrosis.

I do not know why the right renal pelvis was not visible or whether under the conditions of the test that was thought to be important or not.

A blood pressure of 162/105, of course, at her age is markedly pathologic. It means a great deal more than in an older person.

The headache and abdominal pain of September 15 were presumably both due to hypertension.

DIFFERENTIAL DIAGNOSIS

Certainly we have to blame the kidneys, and I do not see how we can possibly say nephrosis alone. Nephrosis alone does not cause all of these symptoms. Hypertension and the running up of the non-protein nitrogen mean that we must certainly say nephritis, possibly with tubular involvement too. The blood in the urine is another point in favor of the diagnosis of nephritis and not at all characteristic of nephro-

sis. The important disease, however, is nephritis, glomerular nephritis, and as she has anemia I do not think we can say acute nephritis. It seems to me we must say that chronic glomerular nephritis is the main lesion here. Whether there was time to develop cardiac hypertrophy is not certain, but it is quite possible. The vomiting, etc., are typical of uremia. It was a death from typical uremia. Autopsy should show also fluid in the abdomen and passive congestion of the lungs and other organs. Whether she had terminal bronchopneumonia or not we have no evidence.

A STUDENT: Does the fact that the urine was loaded with white blood cells indicate anything more than nephritis?

DR. CABOT: I do not think so.

A STUDENT: Could she have had a small pyogenic abscess?

DR. CABOT: I do not think we have good evidence of that.

A STUDENT: Can you offer any explanation for the fact that the right kidney was not seen?

DR. CABOT: I do not know what to say about that. I cannot imagine it is entirely destroyed by this disease and I do not believe she had any other disease such as tuberculosis which could have destroyed it.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Chronic nephritis with edema.

DR. RICHARD C. CABOT'S DIAGNOSES

Chronic glomerular nephritis.
Possibly nephrosis.
Probably hypertrophy of the heart.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Subacute glomerular nephritis.

2. *Secondary or terminal lesions.*

Hypertrophy of the heart.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We found a very severe glomerular nephritis. It was still in the stage which, perhaps on somewhat artificial grounds, we classify as subacute. The kidneys were still hypertrophied and had not as yet begun to contract down as they do in the chronic stage of nephritis. The glomerular process was of a marked capsular type. It is never at all possible to guess from the clinical symptoms which of the two types of glomerular nephritis, the capsular or the intracapillary, one is going to find at autopsy. There was extensive lipoidal degeneration of the tubules, which may well have played a part in the symptomatology, especially in the edema; but all the symptoms could have been produced without that.

DR. CABOT: The heart?

DR. MALLORY: The heart was hypertrophied, 275 grams. At ten that is quite notable hypertrophy.

DR. CABOT: Was there anything to account for the fact that the staining fluid did not come through the right kidney?

DR. MALLORY: Not in the least.

DR. CABOT: Then the question about that right kidney still remains a mystery.

DR. MALLORY: I think the feeling of the Urological service is that the uroselectan test is fine when it works, but that it means nothing when it does not work.

DR. CABOT: Was there any bronchopneumonia?

DR. MALLORY: No.

A STUDENT: Was there any evidence of tuberculosis in the lungs?

DR. MALLORY: No.

CASE 17112*

THREE CASES ILLUSTRATING THE DIAGNOSIS AND TREATMENT OF CASES OF RETARDED DEVELOPMENT

CHILDREN'S MEDICAL DEPARTMENT

This child, a white girl twenty-one months old, has never been normal.

Family history. Her mother has always been nervous and is believed to have hyperthyroidism. Her maternal grandfather also has had symptoms suggestive of hyperthyroidism. Her father is living and well. This is the only child. The mother has had no other pregnancies.

Past history. The birth was at term and spontaneous. The child is said to have been quite jaundiced for five months. She was breast fed for three months with poor results because she habitually went to sleep at the breast. When she was put on a formula this difficulty continued. Occasionally it took her four hours to take four ounces. Numerous types of milk feedings have been tried: Dryco, whole lactic acid milk, Mellin's food, dextrimaltose number 1, number 2 and number 3, Imperial Granum, Nestlé's food and Horlick's malted milk. At the time of admission she was taking Eskay's food 4 tablespoons, water 38 ounces, milk 32 ounces; 5 feedings of 8 ounces. She did not always take the entire feeding and practically never took it well. Orange juice was given, but solid food was never tried because she could not seem to swallow it. The mother feared there was some obstruction. The child did not vomit. Her bowels have always been constipated, requiring some sort of laxative daily.

She has been slow in developing. At present she cannot sit alone, and does not stand alone or talk. She is somewhat spoiled,—cries if left alone. She is not trained as to defecation or

*This and the two following cases were presented at a conference of pediatricians.

urination. Her teeth appeared two weeks before admission.

Little striking change has taken place in the condition of the hair, the skin or the abdomen since the child was born except that she has an umbilical hernia which has become smaller.

She was first put on thyroid gland when she was six months old. This was continued for two months. Then she became jumpy and did not sleep well. The thyroid was not given again until six weeks before admission. During the week before admission she was given six tablets of 1/10 grain each daily.

The mother says that at one time when she was taking thyroid gland the child ate satisfactorily. She feels that this might happen again if she could get exactly the right dose. She therefore brings her to the hospital.

The parents also wish to know whether in case they have other children they would have the same condition as the patient.

Examination. The following measurements were found: height 30 inches (normal for age 32), chest 20 inches (normal 18½), head 18½ (normal 18¾), weight 23 pounds 12 ounces (normal 26 pounds).

Laboratory findings. Blood examination shows 4,100,000 reds, hemoglobin 70 per cent, leukocytes 10,000, polymorphonuclears 40 per cent, lymphocytes 48 per cent, eosinophiles 2 per cent, basophiles 2 per cent, large mononuclears 8 per cent. Wassermann and tuberculin tests are negative. The blood calcium is 12.4 milligrams per 100 cubic centimeters, the blood phosphorus 5.8 milligrams per 100 cubic centimeters. The basal metabolism readings were: calories per twenty-four hours: found, 430; normal for weight 532, -19 per cent; normal for height 476, -10 per cent; normal for age 605, -29 per cent.

CASE 17113

This child, a girl of four years, entered the Massachusetts Eye and Ear Infirmary December 1 complaining of a sore right eye of six weeks' duration.

Family history. Her father has had a nervous breakdown for the past year and went to a sanitarium for treatment. He was nervous, cried readily and was melancholy at times. A paternal aunt and a cousin have had similar trouble. The aunt was at one of the state hospitals for about a year with "melancholy". One other child two years of age is very well and intelligent. The family history is otherwise irrelevant.

Past history. The patient was born at eight months by Caesarean section. The birth weight was 6 pounds 10 ounces. She had good health until she was ten months old, though the mother noticed from birth that her tongue was too large. The baby was breast fed for five months and nursed well. Then she was put upon a whole milk formula and did well nutritionally. She held up her head at one year, sat up at a year and a half and had her first tooth at two years. The teeth did not come in the usual order, but appeared widely scattered and singly. She walked at three years. Recently she has begun to say single words. She has always had frequent colds and her nose has been obstructed. This has increased of late.

At nine months of age she was taken to a hospital where the mother was told that the child had a head cold and was a mongol. The mother would not leave the child in the hospital, but took her to a physician who "did an operation on the base of the spine" and made a diagnosis of encephalitis. He has since been prescribing thyroid. At a year and a half the child had chicken pox and at two years pneumonia. She has always had frequent colds and occasional night sweats.

CASE 17114

This child, a three year old girl of American parentage, entered the Outpatient Department with the complaint of retarded development.

Family history. The parents are young and healthy. They are living apart. The mother has had no other pregnancies. There is no family history of tuberculosis, syphilis or epilepsy.

Past history. The birth was difficult but without instruments. The baby weighed 7½ pounds at birth. She has had no cyanosis or convulsions. She was breast fed for eight months, then weaned. Solid food was given after ten months. Cod liver oil and orange juice were given only in late infancy. Her weight has increased slowly. She had measles at six months.

The grandmother thought that the infant had always shown signs of retardation. She sat up at five months, but did not walk until two and a half years. Her walking is still very awkward. Dentition began only after two years and the order of appearance was irregular. She does not talk yet.

During the past few months she has seemed to have difficulty in vision, especially in the early evening. She stumbles over objects and seems to be indifferent to events and people about her. During the same period her joints have seemed to be very flexible and she has been imitating actions.

Laboratory findings. Blood examination shows hemoglobin 70 per cent, 8,500 leukocytes, 50 per cent polymorphonuclears, 40 per cent lymphocytes, 2 per cent transitional cells. The red cells and platelets appear normal. Blood Wassermann and tuberculin tests are negative. The basal metabolism test is normal for her height and weight: calories per twenty-four hours, found, 566; normal for height 605, -6 per cent; normal for weight 595, -5 per cent; normal for age 690, -18 per cent.

Discussion

BY FRITZ B. TALBOT, M.D.

Case 17112

There are certain points in this case to which it is very well worth while drawing your attention. In the first place, as the history was being read and we watched the child I noticed that she was good-natured and smiling. I noticed also that there is a slight yellowish tinge to the skin. This is supposed to be a case of cretinism. The other points of interest are the flat nose and the rather heavy eyes, a little bit on the leonine type. The back of the hair is slightly sparse, coarse and wiry. She lacks the marked umbilical hernia usually seen, but the navel is not completely closed up. You will notice as she stands up that there are abnormalities in her growth development. The legs are relatively short. The length of the legs in relation to the total height is proportionally the same as in the newborn baby, about three-eighths of the total length of the body. The relative length of the legs in an adult is nearly one-half the total length, certainly one half in a male. This child is a good example of a cretin who has not progressed in its development from the infantile shortness of the legs and arms. Furthermore we have the suggestive wrinkling of the skin suggesting edema at some time, and we have the square hands. To all intents and purposes she meets the classification of a cretin with the exception that the tongue is not sticking out and that the umbilical hernia is not pronounced. The fontanel is very large. The ossification of the bone therefore is considerably retarded.

The question comes up, "Is this child a congenital cretin?" We have to go on the evidence at hand, namely that there is disturbance of the thyroid in the mother and a history of the same disturbance in the grandfather. We are not told whether or not the mother was taking thyroid during pregnancy. If not, it is quite obvious if she is hyperthyroid that the baby developed with too little thyroid, unless the mother became very markedly deficient herself, giving all the thyroid to the baby and keeping none for herself. That could not have happened without symptoms of myxedema appearing in the mother. We do not know whether this baby was born with the signs of cretinism. There are two kinds of congenital cretinism. In one kind the mother of the baby is hypothyroid and the baby is born a cretin, with all the signs of cretinism. In the other type of congenital cretin the baby seems to have had enough thyroid during prenatal life so that it is born to all intents and purposes normal. At about the third month signs of cretinism commence to appear, and if thyroid is not given at that time those signs become more and more pronounced until the time arrives when even the most uneducated person would recognize that there was something wrong. That is a form of congenital cretinism in that the presumption is that the baby's thyroid is deficient at birth but that there is enough thyroxin given to the baby by the mother to last for about eight weeks. The evidence is, then, that this is a case of congenital cretinism. We do not know positively whether the baby was a cretin at birth or became a cretin later.

The second point of interest here is the question of dosage. This baby is now a cretin. The thyroid has been given to it at intervals. It takes some little time for the body to become filled up with the necessary amount of thyroid before there is an excess. There may have been an overdosage, but it took something like two months for that overdosage to appear. When the overdosage did appear and the child became jumpy and did not sleep there were probably other signs present which were not noted. Before she came in here she was given 6 grains a day. That is of considerable interest, because her basal metabolism was only -15 per cent. It is interesting because if this child had not received thyroid during the time preceding its entrance to the hospital its metabolism would have been very much lower. That shows the difficulties of the person in the laboratory to whom a partially treated case is sent. It is difficult to give an opinion of any value under such circumstances.

What should the dose of this child be, speaking in terms of averages? It is guesswork. It can be checked up by the basal metabolism. Under ordinary circumstances a baby of two to four months needs a quarter of a grain of thyroid a day, from four to eight months half a grain a day, from eight to twelve months three-quarters of a grain to a grain, from twelve to twenty-four months one to two grains, from two to four years one and a half to three grains, from four to twelve years three to six grains. How much will this child need? She falls into the one-to-two-year group, so the dosage for her should be one to two grains a day. When she gets established my guess is that this child is going to need about a grain to a grain and a quarter a day.

A Physician: If the parents have other children, what is likely to happen?

Dr. Talbot: If the mother is myxedematous I think the chances are that the baby will also be hypothyroid. I think it comes down then in this particular case to a matter of determining whether the mother is hypothyroid or not. If the mother is hypothyroid and is treated throughout her pregnancy and her metabolism maintained at normal during life, the child will undoubtedly be born a normal baby. Whether that baby will later become a cretin or not it is hard to say. In instances where the mother has not been hypothyroid, the chances are between five and ten to one that another child will not be hypothyroid. In other words the chances are very much in favor of normal infants. To

go one step further, if the mother is myxedematous and suitable care is taken during her pregnancy, and if the child is immediately followed with the same exquisite care that would be necessary, the chances are in favor of that child's developing into a normal adult if treatment is not stopped during the growing period.

There is one disappointing thing about it that still needs a great deal of study and investigation. In those cases in which the child was born apparently normal but the diagnosis of cretinism was made clearly in the very early months and in which treatment was started, the prognosis as to the future mental development is very uncertain. The few cases that have come to my attention early and have received treatment have been relatively disappointing.

Case 17113

This case contrasts with the preceding one. We do not care very much about the history except for the fact that this condition came at birth. But we contrast the physical findings in this child with those of the other. We look at the hair first. Instead of being coarse and sparse it is very fine. We look at the face. The bridge of the nose is wide, as is the other child's, but the epicanthic fold of the eyes is somewhat accentuated. If the eyes were both wide open you would see that they are a little tipped up on the outside. The nose has what the late charming gentleman, Dr. Thompson of Edinburgh, describes as the "button-like" end. It has a very characteristic appearance. If you will look down, you will see that the neck is thick and the supraclavicular fold is rather heavy. You will notice, however, that in the neck there is quite a different thickening from anything that we find in any other condition. The neck seems to be quite long and yet very thick. In this case the tongue that sticks out is in contrast to that of the other child. This tongue is rather long and when she does stick it out far enough it comes to a point. It is fissured and red, in contrast to the color of the other child's, which is pale with a yellowish tinge. The so-called "jaundice" in the other child was probably the yellow color that you see in cretins. This child's cheeks are red rather than pale. The skin on the body is fine and soft rather than rough. The hands are not quite typical. They are rather difficult to describe, but there is no other condition in life in which the hands are exactly the same as the hands of these children with mongolism. The fingers are thick. The hands are short. The little fingers are shorter than the other fingers. There is great flexibility of the joints. You see this child can without any trouble at all put its feet up back of its neck. Other very characteristic signs are the wide spacing between the toes and the line that appears on the soles of the feet. This is a broken one, but the line markings of the feet of these children are different from those of normal children. That finding on the sole of the foot is not confined entirely to mongolism, but it is practically always present in a mongol. You will also notice that there are no lobes to the ears. That is quite characteristic of mongolism, but not an essential characteristic. If she will let me bring this up to a point as it sometimes does, we then have an almost perfect picture of the Marble Faun. I have no doubt that the person who was used as a model was a mongol.

In this case there is a question as to what we shall do about treatment. The treatment in mongolism is a matter of experience. What is given in books is decidedly hopeless. The records say that under the best of conditions the best we can expect to attain in these cases is a mental age of three years. I suspect that this is not quite true, but it is difficult to check it up because so many of these children get thyroid treatment in the mistaken supposition that they are cretins. There is no such thing as a mongolian cretin or a cretinoid mongol. They are either one thing or the other. A mongol may be slightly or more than slightly deficient in thyroid as shown by the basal metabolism. A mongol when given thyroid always improves. Kassowitz believes that they have simply anticipated what they were going to do. On the other hand small doses of thyroid have a definite effect on the mongol.

I have been working for the last seven or eight years with suprarenal cortex. I always hesitate to speak in public about this work because it is so easy to make one's results become what one wants them to be. So you can take what I have to say with a grain of salt. Suprarenal cortex is given on the theory that it is related to the growth of the brain. It is my impression that suitable doses of suprarenal cortex given over a long period of time result in a greater mental improvement than follows any other kind of medical treatment. The best result that I have been able to obtain is illustrated by a child who is now twelve or thirteen years old who has attained according to the measurements of the Psychopathic Hospital a mental age of seven years and eight months. As far as I can learn from everyone that I ask, that is a record. It may be simply one of those accidents that have nothing at all to do with what I have done for him. Aside from suprarenal cortex, treatment is of little avail in improving the mind.

The question has come up in this case as to whether or not the tonsils should be removed. There are two ways of looking at it. Nobody has ever yet been able to make a mongol a normal person, and I fear we are not going to be able to do so. Therefore why should a hospital give time to operations on mongols, keeping out other children who are going to be normal adults? That is a perfectly just criticism to make. The other point of view is, if a mongol has large tonsils and has repeated colds, and if the physical indications are for tonsillectomy, then if

tonsillectomy is done that child nearly always does somewhat better physically and mentally. That does not however affect the final outcome.

CASE 17114

The question in this case is, "What is the matter?" I spent three-quarters of an hour on this child because it was sent over to me to see whether it is a mongol or not. At the end of three-quarters of an hour enough things had happened so that it became clear to me that the child is a mongol. I shall not be able to demonstrate them all. But you see it lacks the characteristic hands and feet. It has characteristic eyes and it has a characteristic nose. It is flexible. One thing that I did not speak of before is that the growth of the teeth of the mongol is quite different from that of the teeth of other children. They are apt to be small and sometimes almost peg-like. This child has that kind of teeth. She also has the button-like end of the nose, and the lobes of the ears are lacking. What finally made the diagnosis clear was that the characteristic grimace the mongol sometimes makes finally appeared after I had watched her three-quarters of an hour. It is sometimes necessary to wait for the grimace before the diagnosis can be made.

DIAGNOSES

CASE 17112

Cretinism.

CASE 17113

Mongolism.

CASE 17114

Mongolism.

PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE A. M. A.

(Continued from Page 559)

Mrs. A. W. McAlester tells us, the women of Missouri are finding the Study Envelopes, published by the Education Committee of the Woman's Auxiliary to the American Medical Association, most interesting and instructive. The Studies on "Common Defects in Children," and on "Diphtheria," "Smallpox" and "Typhoid Fever" were recommended by the Department of Health in the Missouri Branch, National Congress of Parents and Teachers for use on Parent Teacher Programs. Eight hundred copies of each were distributed for use in Parent Teacher Units. Three hundred were requested and supplied for use in Parent Education Classes. Requests are constantly coming in for additional copies of the studies for use by teachers and Parent Teacher Units. The Department of Public Information of the Extension Division of the University of Missouri is including these studies in its suggested programs for clubs in the Missouri Federation of Women's Clubs, and P. T. A. programs. This department requested back numbers of *Hygeia* for use in such programs. Three hundred copies of *Hygeia* were supplied by women in the state and by the circulation manager and are being extensively used in club programs. The Missouri Chairman of Public Relations is planning to have a copy of each of the studies "Common Defects in Children," and "Communicable Disease Control," sent to each county school superintendent in the state. Several of the County Auxiliaries are using the study envelopes in their programs.

Mrs. M. P. Overholser of Harrisonville, Mo., has been appointed chairman of Public Relations in the Missouri Auxiliary. This Auxiliary maintains a scholarship for a medical student, per capita quotas being assigned to each county Auxiliary.

They also have sent in 30% of the total number of *Hygeia* subscriptions recorded from all Auxiliaries from January 1, 1930 to January 1, 1931. Some county Auxiliaries provide *Hygeia* for all their teachers. Among these are Buchanan, Gentry and Lafayette. Cape Girardeau County Auxiliary has just finished paying a $1000.00 pledge to a hospital in the city and is now ready for another kind of worker. They are a live group and certainly work hard to be able to accomplish so many wonderful worth-while things.

Minnesota, the North Star State, has had a busy and successful year on organization. The President and Organization Chairman have visited over the state and planned meetings and Educational programs with many County Groups. In October the International Medical Assembly met in Minneapolis, and at this time the Hennepin County Auxiliary celebrated its twentieth Anniversary, by being hostess for five days to the visiting Doctors' wives. A great many social affairs and an Educational Day, which included a speaker on Public Health, were features. Hennepin County is having a year with a definite program. Each month a speaker is scheduled, and one meeting during the year is reciprocity day and each Auxiliary in the state is invited to send visitors. This group features philanthropic work for T. B. patients at Glen Lake and do much for the Library at the Sanatorium. They have helped the Medical Society furnish their Library and Club Rooms spending $1000.00.

Ramsey County does much the same work. They have a Scholarship Fund for Medical Students. St. Louis County is noted for work in the Public Relations Field. The State Medical *Journal* gives a page to Auxiliary news. One of the other Counties takes care of a Nurse's Scholarship. The Minnesota Auxiliary has a splendid Advisory Board and a page in the State *Journal*. The President will be one of the speakers on the program for the Annual Conference of Secretaries of the Component Societies of the Minnesota State Medical Association, to be held in St. Paul the first week in February. This is the first time the Auxiliary has been asked to take part in this annual affair. Mrs. Hesselgrave's talk will be, "Uses of the Auxiliary."

And so closing my review of the work of the North Central Group of states may I say again—

Builders we are, and Builders we must ever be
Builders not in stone that shelters life, but
Builders in life itself—ever remembering the future of the world for generations to come depends upon what we *think* and *will* and *do* today.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the

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SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, Canada $7.04 per year, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 165 Newbury Street.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 165 Newbury Street, Boston, Mass.

AN ANALYSIS OF THE RESPONSIBILITIES OF SOCIETY IN DEALING WITH THE CRIMINAL

ONE of the major concerns of society is criminology in which field the more cultivated portion of humanity has been groping for some solution of the crime problem. The crude barbarism underlying the administration of so-called justice in former times has been gradually giving way to study of unsocial behavior and of the individual transgressor of law. To this end reformatories have been established primarily to take those persons who give some promise of reacting to educational influences designed to develop character, and they thereby become useful citizens.

Unfortunately, however, it seems that the element of vengeance enters more or less into the mechanical treatment of the criminal by the laity and it is expected of the courts in proportion to the sense of suffering of the victim and especially in homicide cases, that of the immediate friends.

Some of the changes in court procedure have been stimulated by alienists who have felt that the mechanics of law have been defective although theoretically justice is tempered with mercy.

As bearing on this subject we are pleased to present to our readers an address by Dr. A. Warren Stearns in this issue (page 529) who submits many practical recommendations based on the history of criminology and the background of the unsocial tendencies of the criminal.

It is well to consider the whole subject as is done by Dr. Stearns as a function of society at large, both from the preventive aspect as well as in fairness to the actual or potential criminal.

Of course society seeks protection but unless better understanding of the psychology of the offender is acquired ideal justice may fall short of the full measure of fairness.

It is clearly set forth in this remarkable address that preventive measures are as necessary in dealing with moral perverts as they are applicable to the problems of disease.

The reasoning and conclusions of Dr. Stearns should rouse society to its responsibilities in developing instructive methods of approach to the whole subject.

THE PROTECTION OF WOMEN IN INDUSTRY

MASSACHUSETTS is especially prominent among her sister states in several departments of public health activities. She is credited by authorities as a leader in dealing with tuberculosis, cancer and mental disease problems.

Four other less generally recognized applications of important health measures are those restricting the working hours of women, the minimum wage law, the night work law and that regulating the employment of pregnant women before and after childbirth.

The forty-eight hour law is probably of greater importance than any of the other three because of its wider application, although some individuals in the other classes may be subject to emergency dangers of the greatest gravity and especially so among pregnant women.

These laws illustrate the readiness of Massachusetts to disregard certain economic burdens imposed by a health measure when due appreciation of its responsibility to a certain class is acquired.

This recognition of the importance of conserving the health of women workers has placed this state in an unfortunate position in its competitive relation to other sections where the laws permit longer work hours of operatives especially in textile mills.

If doubt exists of the attitude of Massachusetts one may cite the following facts. The maximum hours of labor which shall constitute a week's work for women in industry according to the laws of various states are as follows: in Florida, Alabama, West Virginia, Indiana and

Iowa there is no legal limit; in Illinois and Virginia not more than seventy hours; Idaho restricts the time to sixty-three; Louisiana, Mississippi, Georgia, North Carolina, Kentucky and Maryland to sixty hours; Minnesota to fifty-eight; Tennessee to fifty-seven; Vermont, Montana, Wyoming, Colorado, New Mexico, Nevada, Washington and Connecticut to fifty-six; South Carolina to fifty-five; Maine, New Hampshire and Rhode Island to fifty-four; Wisconsin and Ohio to fifty; Kansas to forty-nine and a half and Massachusetts to forty-eight hours.

It is to be hoped that the example of Massachusetts in this respect will influence the other states to show the same concern about the health of women in industry. She shows her sense of responsibility to womanhood by her surrender of a considerable degree of financial prosperity which has followed the crippling of her industries.

THE IMPORTANCE OF BIRTH REGISTRATION

THE first responsibility for the registration of a birth falls usually on the doctor. Although most of the older European countries have strict requirements covering birth regulations this custom has been of slow development in some sections of the United States and when neglected may impose annoying and even damaging burdens on an individual who cannot produce an official birth certificate.

This matter was discussed at the recent White House Conference and emphasized as one of the inherent rights of children. As a legal requirement every state in the Union except South Dakota now has satisfactory regulations governing birth registration but unfortunately compulsion is not sufficiently applied and many unregistered births are found from time to time. The most important reasons for recording births were set forth recently in the *United States Daily* in the following words:

"There is hardly a relation of life from the cradle to the grave in which the evidence furnished by an accurate registration of births may not prove of the greatest value. For example, the matter of descent, in the relations of guardians and wards, in the disabilities of minors, in the administration of estates, the settlement of insurance and pensions, the requirements of foreign countries concerning marriage, residence and legacies; in marriage in our own country, in voting and in jury and militia service, in the right to enter and practice the professions and in public office, in the enforcement of laws relating to education and child labor, as well as to various matters in the criminal code, etc.

"As life becomes more complex many of these matters which have hitherto been of minor significance will take on a deeper meaning and acquire greater importance.

"A registration system is the sign of commercial progress and opportunity and is indispensable to the removal of insanitary conditions. The upbuilding of communities and the foundation of commercial prosperity are to a large extent dependent upon reliable registration."

Where births occur which are not under the supervision of a physician there is a greater chance of neglect with respect to registration.

Physicians, who attend a family when there has been a recent birth, may with propriety ascertain whether the law has been observed and if not give appropriate advice. Even the well-intentioned doctor has occasionally been at fault.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

STEARNS, ALBERT WARREN. M.D. Tufts College Medical School 1910. Dean, Tufts College Medical School. Commissioner of Correction for Massachusetts. Physician in Charge, Nervous and Mental Diseases, Boston Dispensary. His subject is: "A Program for the Control of Crime in the State of Massachusetts." Page 529. Address: State House, Boston.

JOHNSON, HERBERT L. M.D. Tufts College Medical School 1914. His subject is: "Asepsis: A Possible Interference with the Physiology of Repair." Page 535. Address: 520 Beacon Street, Boston.

ROOD, A. D. M.D. University of Vermont College of Medicine 1908. Assistant to Dr. Chevalier Jackson in 1930. Now Bronchoscopist to: Springfield Hospital, Shriner's Hospital for Crippled Children and Westfield Tuberculosis Sanatorium. His subject is: "Endoscopy and Its Indications." Page 538. Address: 146 Chestnut Street, Springfield, Mass.

FLOYD, CLEAVELAND. M.D. Harvard University Medical School 1903. Chief Examiner, Division of Tuberculosis, Boston Health Department. Address: 246 Marlborough Street, Boston. Associated with him is:

NOVACK, H. ALLAN. M.D. Tufts College Medical School 1921. Visiting Physician, Tuberculosis Division of Health Department of Boston. Assistant in Medicine, Beth Israel Hospital and Harvard Medical School. Address: 483 Beacon Street, Boston. Their subject is: "The Carrier of Tubercle Bacilli." Page 543.

JANKELSON, I. R. M.D. Tufts College Medical School 1918. Assistant in Medicine, Beth Israel and City Hospitals, Boston. Address: 483 Beacon Street, Boston. Associated with him is:

GARGILL, S. L. M.D. Tufts College Medical School 1925. Assistant in Medicine, Beth Israel Hospital and Harvard Medical School. Address: 485 Commonwealth Avenue, Boston. Their subject is: "Bilirubin Liver Function Test." Page 547.

HAHN, RICHARD G. B.S., M.D. Harvard University Medical School 1928. His subject is: "Intracranial Aneurysm, Report of a Case." Page 549. Address: Peter Bent Brigham Hospital, Boston.

BEHRMAN, ROLAND A. M.D. Tufts College Medical School 1911. Formerly Second Assistant Visiting Physician, Boston City Hospital; also Assistant in Clinical Medicine and Instructor in Histology, Tufts College Medical School. Now Assistant Medical Director, John Hancock Mutual Life Insurance Company. His subject is: "Comparative Results of Two Albumin Tests." Page 551. Address: John Hancock Mutual Life Insurance Company, 197 Clarendon Street, Boston.

ROGERS, WILLIAM A. Ph.B., M.D. Cornell University Medical College 1919. F.A.C.S. Assistant Orthopaedic Surgeon, Massachusetts General Hospital. Address: 264 Beacon Street, Boston. Associated with him is:

CAVE, EDWIN F. A.B., M.D. Harvard University Medical School 1924. Orthopedic Surgeon to Out Patients, Massachusetts General Hospital. Assistant Orthopedic Surgeon at New England Peabody Home for Crippled Children. Address: 264 Beacon Street, Boston. Their subject is: "Report of Progress in Orthopaedic Surgery." Page 553.

The Massachusetts Medical Society

HAVE YOUR DUES FOR THIS YEAR BEEN PAID?

MEMBERS of the Massachusetts Medical Society should remember that the *Journal,* acting under the vote of the Council, is obliged to omit sending the *Journal* to those members who are in arrears beyond March 1 of each year.

If you have not paid your dues, please forward them to your District Treasurer.

THE BOSTON MEDICAL LIBRARY

HIPPOCRATES

458-349 B.C.

As in the history of nations, there are here and there outstanding figures whose personalities have dominated the life of their times and whose genius for organization has gathered up what was good in the nation's past and recast the national character in a new mould, thereby seemingly recreating the whole structure of that particular people's nationality, so in some such way Hippocrates, with a vision not hitherto possessed by any one medical mind, seems to have collected the current theories of the causation of disease and such observations as had become common property and from these set up a new conception of how to study the ills of the human body, discarding much of the old superstition and inaugurating a new era in medical diagnosis and practice. He did more than this for he formulated an ethical code, which in principle, at least, has dominated the entire practice of medicine for the 2400-2500 years since his time. His influence was felt at the period when Hellenic civilization was at its height, when the statesmanship of Pericles, the philosophy of Socrates and the historical genius of Thucydides were making Greece famous and the world richer, because they had lived. Besides these the drama was thriving under such masters as Sophocles and Euripides; sculpture and architecture under such leaders as Phidias and Praxiteles. There were many lesser lights and it is doubtful, as Garrison has suggested, if ever, in so small a compass and in so short a space of time there were so many leaders of thought and masters of art brought together.

Apparently the conditions which encouraged one sort of intellectual superman were equally beneficial in the production of others. In the world's history this has often been observed. In English History the age of Elizabeth and the period of the Victorian poets are examples. Back of Hippocrates was an ancestry which had belonged to the Aesclepiadae, the followers of the mythical character Aesculapius, and the Island of Cos, where Hippocrates was born, had long been a center of activity for this cult. In fact there was a flourishing medical school here, a rival of the other Grecian school at Cnidus. The stage was therefore well set for the arrival on the scene at about the year 459 to 462 (the exact date of his birth cannot be positively established) of the one who was destined to be more quoted and talked about than any medical authority whom the world has ever known. Some say he was born during the first year of the 80th Olympiad, which would place his birth in the 5th year of Artaxerxes Longimanos' reign. This makes him contemporary with Socrates, Herodotus and Thucydides.

Hippocrates was the son of a midwife, 18th in descent from Hercules and the Aesclepiad Heraclides, 17th in descent from Aesculapius. His father was his first teacher, and both his father and grandfather, who were physicians, saw to it that he was taught, not only medicine, but natural philosophy, geometry, logic and astronomy. As was the custom at that time he was trained as a public speaker and had the advantage of coming under a most renowned elocutionist, viz., Georgias. As there were no books, all knowledge had to be disseminated by word of mouth.

His career might be better appreciated if we recall that the first 30 years of it coincided with the age of Pericles during which period the Acropolis at Athens became adorned with those magnificent structures, the ruins of which bespeak the genius of their designers and decorators. Aeschylus died when Hippocrates was in his childhood. Sophocles and Euripides were

37 and 25 years, respectively, his seniors. Anaxagoras was 40, and Socrates 10 years older; Herodotus was 24 and Thucydides 11 years his senior, whereas Xenophon was 15 years his junior. The second period extends from the death of Pericles to that of Socrates, about the close of the 5th century. This was the time of the Peloponnesian wars, a tragic interval in Greek history, but through it all Greece maintained her intellectual supremacy. The third period extends from the death of Socrates to his own demise, and during this time Plato and Aristotle were making the age memorable by their teachings. The Greeks were a religious people at this time, believing as firmly in their many Gods as the Hebrews did in their one God. The land was studded with temples where worship and healing were wont to go on together. Apart from their religious beliefs they were greatly given over to philosophical speculation and much time was spent in the discussion of questions growing out of intellectual differences which characterized opposing philosophical schools. So it was the philosophers, the religious faiths and temple healing, together with the Gymnasia that provided the background for Hippocrates' revolutionary doctrines. After his father's death he went to Athens and is said, after a period of study there, to have travelled for twelve years which probably accounts for his keenness in observation. Travel was one of the methods of self-education upon which he always insisted. During this first journey, which ultimately led him to Athens, he was often summoned to aid in the suppression of epidemic diseases. At last he arrived at Athens, after a sort of triumphal progression, in time to help the Athenians combat the Plague which Thucydides has so graphically described. He later made his home on the island of Thasos off the coast of Asia Minor; he spent some time in Egypt and then returned to Larissa where he passed the remainder of his life and is thought to have died. His tomb in fact was shown at this place until some time in the second century of our era.

His guiding precept in life was expressed by this phrase: "Life is short, opportunity fleeting, judgment difficult, treatment easy, thought hard but treatment, after thought, is proper and profitable." There are fifty-three Hippocratic writings or texts in the Ionic dialect. A small part of these however are by Hippocrates himself. He enriched science with new material but more particularly he laid the foundations of a scientific method of study. He was essentially a practitioner and sought to aid his patients in every way he could. He said, "Where is love for art, there is also love toward man." This gives expression to the humanitarian impulse which was one of his guiding principles, as it should be for all who elect the practice of medicine as their life's work. Hippocrates' disdain for pecuniary rewards was well shown in his refusal of a royal fee, tendered him by Perdiccas, King of Macedonia, and by his declination to go into Persia at Artaxerxes' bidding, even though he accompanied his invitation by 100 talents of silver and the promise of the gift of certain cities. He was renowned in his day not only because of his skill as a physician but because of his character as a man. He sought to do all the good he could and the question of reward never entered into the matter at all. Both Plato and Aristotle speak highly of him, acknowledging him as their master. Egypt, Babylon and the Indies were included in his travels and the experiences he had in those countries were recalled by him as being important factors in the acquisition of his knowledge of disease.

The outstanding contribution of Hippocrates to medicine, as has been said, was to emphasize the importance of observation. Claude Bernard has remarked that observation was a passive science whereas experimentation was an active one. Asclepiades commented on the observational method as being a "meditation on death" but nevertheless the method was a necessary precursor of the more modern one of experimentation, for without adequate training of the observation no experimentation could be successfully carried out. Certainly no more accurate records are extant or ones of which time has more completely proven the accuracy and worth than those made by Hippocrates upon the malarial fevers of Thrace and Thessaly, upon Phthisis, epidemic parotitis, epilepsy, puerperal septicaemia and many others.

In surgery the treatment of fractures, dislocations and wounds might well take their place, with few modifications, in modern textbooks. He was the first to draw attention to the association of tubercle in the lungs with the deformity of the spine characteristic of Pott's Disease. He first recognized the phenomena of "succussion", applied to the recognition of effusions in the chest, and was also the first to call attention to that peculiarity of respiration known later as Cheyne-Stokes, describing it in a way that helps to fix its essential peculiarity in the mind by saying it is "like that of a person recollecting himself". He gave the original description of the union of wounds by first and second intention and though his method of treatment cannot be claimed, in the light of modern knowledge, to be either aseptic or antiseptic, still he was the first to approach the former in his method of dressing open wounds. He recognized the fundamental necessity of splinting and rest in the management of surgical injuries. He made no boastful claims for any of the work he had done or the cures he seemingly had effected, as did Galen, but seems to have been actuated solely by a desire to record his observations accurately for the good of mankind. Osler, in his Silliman lecture at Yale, refers to a passage in Hippocrates' writings where he says, apropos of certain unsuccessful cases he had prescribed

for, "I have written this down deliberately, believing it valuable to learn of unsuccessful experiments and to know the cause of their failure." His considerable volume of writing was clearly and simply given in the literary style of the best of Greek writers. In therapeutics his principle was primarily that of assisting Nature. Fresh air, good diet, purgation, barley water, wine, massage and hydrotherapy were the agencies upon which he pinned his faith.

MISCELLANY

MATERNITY CASES AND NURSING CARE*

Eighteen per cent. of the private duty nurses in a representative group of 24,389 nurses reported that they will not take obstetric cases if they can avoid it. When the records of 15,694 young graduates, in the 1928 class, were examined, it was found that about eighteen out of one hundred have had either no practical experience, or inadequate experience, in caring for maternity patients during their entire training.

This close agreement would seem to show that the nurse who registers against the maternity case is apt to do so because she feels the lack of sufficient training, and is unwilling to nurse a patient to whom she cannot give proper care.

The Committee on the Grading of Nursing Schools made the studies from which the above figures are taken, as part of its investigation to find out how to provide the type and quality of nursing service needed by the patient and wanted by the doctor.

Testimony of patients, doctors and registrars show that, though all agree there is numerically a sufficient supply of nurses, there is often a serious shortage of nurses to fit the needs of the maternity patient and her doctor.

Ninety-four out of a hundred obstetricians often need a nurse for their cases, it was shown through answers to questionnaires of more than 4,000 physicians. The demand was stronger for hospital cases than for home cases, with 24 per cent., of those reported, in the home, 56 per cent. in the hospital, and 20 per cent. in both hospital and home.

The obstetricians were more interested than the average doctor in having nurses familiar with their specialty. Fifteen out of a hundred doctors, in general, want the nurse to have familiarity with a particular disease; 21 per cent. of the obstetricians checked this as an essential qualification of a good nurse. More than one-fifth of the maternity patients gave as their reason for employing special nurses the doctor's insistence that special nursing care was necessary.

It is only occasionally that nurses refuse calls, the questionnaires showed. Of those which were refused, 8 per cent. were for obstetric cases. These and contagious cases are the two types most frequently registered against by nurses. Five out of 100 registrars said that maternity case calls are the hardest to fill, harder than 24-hour duty, night or holiday calls. "Very few will take obstetrical nursing," wrote an Alabama registrar.

Of 486 Massachusetts nurses, 98, or 20 per cent., said they register against this type of work; of 1,334 New York nurses, 245, or 18 per cent., register against it; of 309 Illinois nurses, 52 or 16.8 per cent. In general, 18 out of 100 nurses register against maternity cases.

As for satisfaction with the nursing service they obtained, the obstetricians found "very good" nurses at least as often, or slightly oftener, than the average doctor; 59 per cent. of them rated their nurses under this head, as compared with the general rating of 57 per cent. The obstetricians rated 88 per cent. of their nurses good or very good. On the other hand, they found twice as many poor nurses as the physicians in general, 4 per cent. of their nurses being so rated, as compared with 2 per cent. of the nurses in general.

This suggests either that the obstetrician, hard-pressed for a nurse, must more often take the inferior type which is rejected by the others, or that the requirements as to good nursing among obstetricians are higher than among physicians in general.

The Grading Committee made a special study of the kinds and amounts of experience and instruction given student nurses in obstetrics, which is considered by most state boards of nurse examiners as one of the essential services in the training of the well-qualified bedside nurse.

In view of the fact that a student nurse's time "on the wards" is given in some measure to routine care of patients, rather than to specific observation and care of the particular illness, nurse educators feel that less than three months' obstetrical experience is inadequate. A minimum of observation of twelve cases of labor, and actual assistance at ten deliveries, is set in the curriculum of the National League of Nursing Education.

Twenty-seven schools, or 2 per cent. of those included in the survey, have no obstetric service. Forty-nine students, though in schools attached to hospitals having an obstetric service had been given no experience in it. This is an important indication of the lack of adjustment of a student nurse's actual work in the hospital to her educational needs.

Examples of inadequate experience of those who did have some assignments in obstetric service follow:

Thirteen students spent only ten to nineteen days in the obstetric service.

Twenty-six students spent only twenty to twenty-nine days.

Fifty-six students spent only thirty to thirty-nine days.

One hundred and fifteen students spent only forty to forty-nine days.

One student in each 100 spent less than one month in obstetric service.

Three students in each 100 spent one month.

Fourteen students in each 100 spent two months.

Altogether, eighteen of each 100 of the 15,694 nurses graduating in 1928 from 1,131 schools were

*Report of the Committee on the Grading of Nursing Schools.

prepared not at all, or inadequately prepared, to take care of maternity patients as practicing, registered graduates, as far as practical experience during training is concerned.

Since about 25,000 nurses were graduated from the training schools altogether in that year, and since the Grading study includes the majority of the better schools among the 2,205 now in the United States—the study does not take in, for example, the 250 non-accredited schools—it is probable that for the entire number of 1928 graduates who had adequate obstetric training, the percentage is even less than the Grading figures would indicate.

The Grading Committee itself as yet has not arrived at standards of length of practical experience or class instruction, since it first wishes to find out the facts. But it takes into account the curriculum of the League of Nursing Education, which is the one generally considered desirable by nurse educators.

Class instruction, by an obstetrician and a well-qualified graduate nurse, should take 30 hours during the thirty-six months of training, according to the standard commonly accepted in nursing circles. More than one-half, or 51 per cent. of the schools reporting said they plan to give less than this amount, though some plan to give more time to such classes.

Part of the purpose of class instruction is to inspire in the student a sympathetic understanding of the particular needs of the maternity patient. It also takes up her care in the home, with necessary modifications of hospital routine, most important for students who will practice in the smaller communities.

Other subjects assigned to class instruction are the physiology and hygiene of normal pregnancy, nurse duties during labor, nursing care of normal puerperium and of complications; including hemorrhage, infection, phlebitis and mastitis. It is considered most advisable to correlate ward experience with classroom instruction, and to give both after the general medical and surgical nursing courses.

The nursing schools taking part in the study are receiving reports showing their own standings and those of the schools generally, so that they may see what other schools are doing in turning out the all-round, well-qualified nurse, and how they may help raise nursing standards.

MORTALITY RATES

Telegraphic returns from 81 cities with a total population of thirty-six million for the week ending February 21, indicate a mortality rate of 14.5 as against a rate of 13.7 for the corresponding week of last year. The highest rate (23.7) appears for Camden, N. J., and the lowest (6.7) for Flint, Mich. The highest infant mortality rate (18.6) appears for New Bedford, Mass., and the lowest for Grand Rapids, Mich., Portland, Oreg., Somerville, Mass., and Utica, N. Y., which reported no infant mortality.

The annual rate for 81 cities is 14.2 for the eight weeks of 1931, as against a rate of 13.3 for the corresponding weeks of 1930.—*Department of Commerce.*

HOW INSURANCE AFFECTS GERMAN DENTISTS*

Germany was the first nation to install health insurance. Now after almost half a century of experience it is, in spite of the many changes that have taken place, possible to pass judgment on nearly all its results.

The fact that German dentistry was from the beginning divided between two classes of practitioners has deeply influenced the relations of both insurance and dentistry. The *Zahnärzten* are physicians who have specialized in dentistry. Alongside this class there grew up a constantly increasing number of dental technicians. As prosthetic dentistry grew in importance as compared with dental surgery these came to take over more and more of the dental field, especially among the insured.

When insurance was established there was practically no prosthetic dentistry, at least among the working class. There were thus three lines of progressive increase; first, number of insured; second, relative importance of prosthetic dentistry; and third, largely as a result of the other two, in the number of dental technicians and consequent scope of their work.

Insurance societies seek the cheapest service that will be satisfactory to their members. In the beginning, at least, the dental technicians charged less than the dental surgeons. In many cases *insurance physicians* prescribed and directed the work of dental technicians.

Soon the latter began to develop their own special professional skill, standards, educational institutions, and organizations. At the present time they have obtained official recognition for the graduates of their dental institutions, which they claim are modeled on the dental schools of the United States. They have assumed the name of "dentists" in spite of strenuous protest from the *Zahnärzten*. They now largely dominate the great insurance practice.

Unfortunately the insurance societies were able to play upon the antagonism of these two branches and thereby drive the rewards for insurance dental work down almost to the starvation point. At first the *Zahnärzten* were not so greatly affected because dentistry was still a luxury profession, but when insurance brought so large a section of the population, hitherto almost without dental care, within its scope, it dominated dental service.

When the two divisions of the dental profession tried to coöperate against the insurance societies, the latter established great clinics. It is complained that in many cases excessive sums were invested in the building and equipment of such clinics largely for advertising purposes. These clinics were staffed by whichever section of the profession could be hired most cheaply. Usually both branches were utilized, but the number of "dentists" so employed was much the larger.

The political and social power of the societies and the weakness and unpreparedness of dental organizations prevented the profession from maintaining

*This study is being financed by the American College of Dentists.

control of clinics. These are, therefore, operated almost entirely in the interest of the societies with a disregard for professional interests. Once established they did not confine themselves to insurance patients, but entered upon general practice on a strictly commercial basis. They even invaded the "luxury" practice and supplied private patients with expensive dentures of precious metals such as are forbidden in insurance practice. In short, the course of evolution, political conditions, weakness of preparation and divided organization have all combined to bring upon the German dental profession the very worst effects of the insurance system.

COMMITTEE ON THE STUDY OF DENTAL PRACTICE,
H. E. Phillips, D.D.S., Chairman.
R. E. Denny, D.D.S.
H. J. Leonard, D.D.S.
G. S. Millberry, D.D.S
C. E. Rudolph, D.D.S.

A. M. Simons, B.L., Research.
N. Sinai, D.P.H., Adviser.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1930 AND SEVEN YEAR AVERAGE

MONTH ENDING MARCH 7, 1931

Diseases	1931 Week ending Feb. 14	1931 Week ending Feb. 21	1931 Week ending Feb. 28	1931 Week ending Mar. 7	Average cases reported for week corresponding to Mar. 7 for past seven years	1930 Week ending Feb. 15	1930 Week ending Feb. 22	1930 Week ending Mar. 1	1930 Week ending Mar. 8
Anthrax	—	—	1	—	—	—	—	—	—
Cerebrospinal Men.	2	1	2	2	—	—	2	3	—
Chickenpox	118	88	95	82	91	161	139	152	125
Conjunctivitis Inf.	—	—	1	3	—	3	—	—	2
Diphtheria	12	12	9	6	37	25	20	23	22
Encephalitis Epid.	—	1	1	—	—	—	—	—	—
German Measles	3	10	6	6	42	41	46	49	36
Influenza	261	105	133	13	45	6	10	10	20
Malaria	—	—	—	—	—	—	—	—	1
Measles	269	414	438	503	342	20	13	23	39
Mumps	65	96	52	90	125	46	44	45	54
Pneumonia (Broncho)*	53	63	53	57	45	39	52	67	60
Pneumonia (Lobar)	67	70	59	54	55	65	69	74	81
Poliomyelitis	—	—	—	—	—	1	—	—	—
Scarlet Fever	73	55	40	62	120	127	131	124	163
Septic Sore Throat	3	9	3	3	3	—	1	1	4
Tuberculosis (Pul.)	22	8	13	38	29	19	21	27	28
Tuberculosis (O. F.)	3	2	1	3	3	4	1	5	1
Typhoid Fever	—	1	—	1	2	1	1	—	—
Undulant Fever†	—	3	—	2	—	—	—	—	—
Whooping Cough	71	47	35	95	87	54	43	67	44
Gonorrhea	18	25	29	24	30	18	18	48	34
Syphilis	16	37	36	42	47	23	28	71	56

*Made reportable January 1, 1925.
†Made reportable August 14, 1928.

Remarks: No cases of Asiatic cholera, glanders, plague and yellow fever during the past seven years.

CORRESPONDENCE

AN OLD ADVERTISEMENT FOUND IN THE CITY MUSEUM OF NEW ORLEANS

2508 Napoleon Avenue,
New Orleans, La.,
February 27, 1931.

The *New England Journal of Medicine*,
Boston, Mass.

Attention: The Editor

While visiting the Cabildo in New Orleans, which is the City's Museum, I saw in a glass case the following advertisement of the Urologist in 1799. It struck me as being unique in these days of very ethical methods among physicians and surgeons, and I wondered if you would like to publish it if you have a column in your *Journal* for novel items and a departure from your regular matter. The punctuation and caps are just as I found them in the newspaper of that date.

I have lived in Boston and that is why I thought of your *Journal*.

Very truly yours,
(Mrs.) Lucy M. Miller.

The New Orleans Gazette
February 1, 1799

Doctor Cornwell

Whoe is a member of the Corporation of Surgeons of London.

Still continues at his old Shop, Number 52 Chartres Street, near the United States Branch Bank (his name on the door) where he continues to practice MEDICINE and SURGERY, in all their various branches as formerly; ON LOW TERMS.

And for the better information of strangers (and others) that may contract a certain complaint in their unguarded moments, and may not know where to apply for relief, without being exposed to more persons than is agreeable;—by which exposure future prospects—if not domestic tranquility may be deranged;—has thought proper to mention, that he keeps no person with him in his apartments, and that he compounds and puts up all his medicine himself;—and from his long experience, great attention and well known superior abilities (and secrecy) in this branch of his profession, as many hundreds can testify, in every stage of the complaint,

Thinks that those afflicted with the same will find it to their interest, by applying as above.

N.B.—Medicine put up for gentlemen going on a voyage or journey, in a careful neat manner, with ample directions.

PROHIBITION AT ITS WORST

Mr. Editor:

I have read with interest your editorial in the *Journal* of February 12, "The Wickersham Report and the Medical Profession," and also the letter of my friend Dr. H. F. R. Watts, in the February 19 number of the *Journal*. The following incident, which occurred during my summer work last year, may be of interest in connection with the Editorial and Dr. Watt's letter.

A middle-aged lady had just been through a severe abdominal operation in her home city in Canada. She was coming to Maine for quiet and rest, being far from well. At the border, the usual search was made, and her small supply of whiskey, in a much valued flask, was confiscated. By no pleading was she able to save the flask. She showed the prohibition agent a letter from her surgeon, stating that the whiskey was for medicinal use. To this the agent paid not the slightest attention.

The agent who confiscated this poor lady's medicinal whiskey, bore the external and visible signs of a spirituous and inward warmth, consistent with the ingestion of a considerable amount of *spiritus frumenti*.

"O Temperums! O Moses!" as our friend Jeames was wont to say.

Very truly yours,
March 6, 1931. Wm. Pearce Coues, M.D.

RECENT DEATH

DURGIN—Dr. Samuel Holmes Durgin, chairman of Boston's first Board of Health for nineteen years, died at his home in Allston, March 6, 1931, at the great age of 91.

He had been retired since 1916 and had lived in Duxbury and Allston. He is survived by his second wife who was Mrs. Emma Coles Adams of Boston and by a son, Edmund H. Durgin, of El Paso, Texas.

NEWS ITEM

INTERESTING FACTS ABOUT NEW YORK.—New York, the largest city in this country, recorded in 1930, 63,337 marriages, about seven per hour; 122,811 babies were born, an average of 14 every hour; there were 74,888 deaths, averaging 9 per hour.

The largest number of births in any month was in July and the smallest in November.

The largest number of deaths in any month was in March and the smallest number occurred in September.

June upheld its reputation as the favorite month for marriages.

NOTICES

REMOVAL

Dr. Basil E. Barton announces the opening of his office at 10 Richwood Street, West Roxbury.

ACKNOWLEDGMENT

To the Editor:

We wish to thank the person who donated the blood pressure apparatus recently asked for. As there was no name attached, we are unable to personally thank the donor.

Boston Tuberculosis Association.
554 Columbus Avenue, Boston.

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P. M. on Thursday, March 19, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. Henry A. Christian, to which physicians are cordially invited. These clinics will be held regularly on Thursday afternoons.

REPORTS AND NOTICES OF MEETINGS

THE BETH ISRAEL HOSPITAL PEDIATRIC CLUB

A meeting of the Pediatric Club was held in the auditorium of the Beth Israel Hospital on Thursday, February 26, 1931.

Dr. Hyman Green spoke on Uncommon Forms of Heart Diseases in Infants and Children—describing Idiopathic Hypertrophy, Paroxysmal Tachycardia and Heart Block. X-ray photographic slides were used for illustration.

Dr. Ruth Weissman presented the subject, Abdominal Symptoms in Rheumatic Fever—emphasizing, 1, The occurrence of abdominal symptoms in Rheumatic Fever; 2, The need for further elaboration of the disease entity.

A stimulating discussion followed.

RUTH WEISSMAN, *Secretary.*

March 3, 1931.

WACHUSETT MEDICAL IMPROVEMENT SOCIETY

The last meeting of the Wachusett Medical Improvement Society was held at the Holden Hospital, March 4, 1931.

Dr. J. J. Cummings of Worcester presented a very interesting and instructive paper entitled, "Inversion of Uterus" and "Pregnancy and Appendicitis." Discussion followed that brought out very many fine points.

In spite of the inclement weather the meeting was largely attended.

Supper was served by the Superintendent of the Holden Hospital.

WILLIAM T. KNOWLTON,
Secretary and Treasurer.

WEBSTER MEDICAL CLUB

The Webster Medical Club, in existence for the past twenty years, holding bi-monthly meetings, put on its largest and most pretentious program February 25, 1931, at the Joslin House, Webster. The Club held this in conjunction with the Medical Club of Putnam, Conn., and the Southbridge Medical Club, recently organized, and had as guests nearly the full membership of the Wachusett Medical Improvement Society of Holden, Mass.

Joseph C. Sullivan, M.D., President of the local club, arranged the program and acted as master of ceremonies. There were 40 physicians present at the banquet and meeting, together with six superintendents of nurses.

The Fallon Clinic, Slater Building, Worcester, put on the following scientific program, in charge of Dr. M. F. Fallon and his assistants:

Intravenous Urography, A. E. O'Connell, M.D.

Radium Treatment in Uterine Bleeding, John M. Fallon, M.D.

Diagnosis of Extrauterine Pregnancy, John J. Dunphy, M.D.

Functional and Organic Dyspepsia, James C. McCann, M.D.

Appendicitis in Children under Seven Years, William F. Lynch, M.D.

This consisted of short papers only, giving plenty of opportunity and time for discussion. (Outline follows.) Various cases were demonstrated and the meeting was voted the most typical of the old-time medical round table discussion experienced in years.

BERNARD L. PLOUFFE,
Secretary of the Webster Medical Club.

DIAGNOSIS OF EXTRAUTERINE PREGNANCY

Webster, Mass., February 25, 1931.
J. J. Dunphy, M.D.

SUMMARY OF 42 CASES

Age 20 to 42

Previous pregnancies 1 to 8

Extrauterine in	1st pregnancy	12
	2nd "	12
	3rd "	7
	4th "	6
	5th "	1
	6th "	1
	7th "	2
	9th "	1

(One patient's twin had extrauterine pregnancy)

HISTORY

Onset

Sharp pain	30	
Sudden sharp pain		13
Sharp pain and bleeding		10
Sharp pain and faintness		6
Sharp pain and vomiting		1
Scanty uterine bleeding	8	
Aching pain	2	
Profuse uterine bleeding	2	

Amenorrhea

2 to 84 days	37
None	5

Abnormal Uterine Bleeding

Absent	10	
Present	32 — duration few hours to 4 months	
Continuous		21
Scanty	8	
Moderate	10	
Profuse	3	

Intermittent 10
Scanty 4
Moderate 4
Profuse 2

Fainting 14 Faintness 22

Duration of symptoms (at time of examination)
1 day or less 6
1 week or less 7
1 to 2 weeks 8
2 to 4 weeks 9
1 to 4 months 12

Previous menstrual history
Regular 27
Irregular 14
Dysmenorrhea 6 — 4 regular, 2 irregular
Menorrhagia 3 — 1 regular, 2 irregular

History suggesting previous pelvic inflammation
Present 11
Absent 31

Previous abdominal operations 9
Appendix 4
Extrauterine 2
D. & C. 2
Gall-bladder 1
Kidney Stone 1
Pelvic Abscess 1
Cesarean 1
(both tubes clamped and ligated)

PHYSICAL EXAMINATION

Abdominal tumor or induration	12	Abdominal tenderness	40
Abdominal rigidity	8	Whole abdomen	4
Abdominal distention	7	Whole lower abdomen	13
Pallor	26	Right lower quadrant (chiefly or entirely)	10
Shock	5	Left lower quadrant (chiefly or entirely)	11
Cyanosis	2		
Air-hunger	1		
Jaundice	4	Left upper quadrant	1
		Right costal margin	1

LABORATORY FINDINGS

Anemia 25 — red blood cells 1.8 to 4.2 millions
No anemia 10
Not recorded 7

Leucocytes
14 to 36 thousand 17
Below 14 thousand 25

van den Bergh recorded 12
Normal 4
High 8 (3 to 5 mgms. per hundred cc.)

Operations 40
Right tube 27
Left tube 15
Fetus free in abdomen 3
Placenta adherent to uterus and broad ligament 1
Pelvic adhesions 8

Transfusions 10

Intravenous Acacia 1

Autopsy 1 — Fatal intraperitoneal hemorrhage

FUNCTIONAL AND ORGANIC DYSPEPSIA

The management of dyspeptics is apt to be unsatisfactory because of indefiniteness of symptoms and the time-consuming process of differentiating its features.

Symptoms—

1. Fullness, usually of functional origin.
2. Anorexia; from diminished tonus; functional from fatigue; organic from carcinoma.
3. Flatulence; swallowed air. Psychogenic or organic.
4. Nausea; borderland of functional and organic, usually not with painful dyspepsias.
5. Heart-burn, from poor motility near cardia; may occur with normal acid values.
6. Vomiting; extra-gastric frequently. Check relationship to nausea, food-taking, pain.
7. Hemorrhage; chiefly from two causes; varices of oesophagus; cancer or ulcer of stomach.
8. Pain, characteristic is keynote to proper diagnosis.

Disease basis for symptoms—

1. Functional; poor hygiene; psychogenic; bowel irritability.
2. Organic;
   a) Systemic; liver, heart, infections, anemia.
   b) Local; gall bladder, appendix, stomach.

Differential Diagnosis—

1. History and Physical examination; fundamental importance.
2. X-ray and fractional analysis; accessory to fortify serious diagnosis or clarify doubtful one.

Necessity of adequate management.

1. Functional; invalidism, neurosis, economic factor.
2. Gall Bladder; common duct, perforation, hepatitis, pancreatitis, myocarditis.
3. Appendix; threat of acute attack; increase in mortality.
4. Cancer; 50% inoperable clinically; a half of the other 50% resectable. Cures and comfort.
5. Ulcer, adequate medical or timely surgical management to avoid invalidism and complications.

JAMES C. MCCANN.

FLOWING AT THE MENOPAUSE (AGES 38-48)

Uncommon causes: extrauterine pregnancy, miscarriage, endocrine disturbances (especially ovarian), cancer of vulva, etc., etc.

Common causes (In order of frequency):

1. Metritis of climacteric. Symptoms—irregular, profuse flowing; enlarged, soft uterus. Biopsy—usually hyperplasia of endometrium. Treatment—radium. Result—±90% cure.
2. Fibroids of uterus or fibroid uterus. Symptoms—as No. 1; nodular uterus. Biopsy—usually negative. Treatment: operation (mortality—3%) if large, pressure-producing, or pedunculated, or if previous pelvic inflammation. Otherwise radium (cure ± 75%).

3. Cancer of cervix. Symptoms—spotting, then flowing, without relation to ctma. Biopsy—indispensable, especially early. Treatment—radium. (Formerly operation with 25% mortality.)
   Results—Very early cases—90% 5 year cures
   Early cases—50%
   Advanced—10-15%
   Extensive—1-%
   All groups—definite relief—95%
4. Cancer of fundus. Symptoms—Meno and metrorrhagia. Diagnosis by biopsy. Treatment—hysterectomy (complete). Results—no figures about cures. Mortality 3-5%.
5. Polyp. Symptoms and diagnosis as No. 4. Treatment—curettage (usually radium also). Results—no figures.

Special points

1. Radium is feared too much. In this series:—deaths—0; "burns"—none known.
2. Except for cancer, radium is contraindicated by old pelvic inflammation.
3. Examination under narcosis (i.e., with relaxation), and pathological examination of involved tissue (preferably by immediate frozen section) should proceed treatment.

JOHN FALLON.

BOSTON MEDICAL HISTORY CLUB

Monday evening, March 16, 8:15 P. M.
Boston Medical Library
8 The Fenway

"Medicine and Fiction," Dr. A. B. Lyon.

"Some Recent Accessions to the Bullard Collection of Incunabula." James F. Ballard.

Light refreshments after the meeting.

JAMES F. BALLARD, *Secretary.*

THE NEW ENGLAND ROENTGEN RAY SOCIETY

The March meeting will be held at the Children's Hospital, Boston, Mass., Friday night, March 20, 1931, at 8:15.

Entrance to the amphitheatre on Vila Street, just off Longwood Avenue.

SCIENTIFIC SESSION

Encephalography; Its Indications and Use in Children. Bronson Crothers, M.D.

Roentgenological Diagnosis of Lead Poisoning. Edward C. Vogt, M.D.

Discussion of Lead Poisoning from the Standpoint of the Pediatrician. Charles F. McKhann, M.D.

The usual dinner will be held at the Harvard Club.

T. R. HEALY, M.D., *Secretary.*
370 Marlborough Street, Boston, Mass.

GREATER BOSTON MEDICAL SOCIETY

A special meeting of the Greater Boston Medical Society will be held on Tuesday, March 17, 1931, at 8:15 P. M., in the auditorium of the Beth Israel Hospital, on the subject of "Dispensary Abuse."

The paper of the evening will be read by Dr. Boris E. Greenberg and will be discussed by Dr. Charles H. Wilinsky, Director, Beth Israel Hospital; Dr. John B. Hawes, 2nd; and several others who have been doing work in the field.

Physicians, social workers, and all others interested are invited to attend.

GOOD AND WELFARE COMMITTEE,
Greater Boston Medical Society.

BELMONT MEDICAL SOCIETY

There will be a meeting of the Belmont Medical Society Friday, March 27, at 8.45 P. M., at All Saints' Parish House, Clark Street, Belmont. The speaker will be Dr. James P. O'Hare, Assistant Professor of Medicine, Harvard Medical School, and Senior Associate in Medicine at the Peter Bent Brigham Hospital.

Subject: Newer Methods for Diagnosis of Nephritis and Hypertension.

STEPHEN J. MALONE, M.D., *Secretary.*

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The next regular meeting of the Society will be held on Wednesday evening, March 18, 1931, at 8 o'clock at the Boston Square and Compass Club.

Subject: Symposium on Physical Therapy in Diseases of the Eye, Ear, Nose and Throat.

1. Diathermy in Otolaryngology, George B. Rice, M.D. Discussion by George E. Percy, M.D.
2. Physical Therapy in Diseases of the Eye, William D. Rowland, M.D. Discussion by Jeremiah J. Corbett, M.D.

All medical men are cordially invited. Dinner will precede the meeting at 6.30 as usual.

ARTHUR H. RING, *Secretary.*

THE CLINICO-PATHOLOGICAL CONFERENCE OF THE NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

This conference will be held at the hospital, Dimock Street, Roxbury, March 19, at 8 P. M., with the following program. 1. Report of deaths for February. 2. Report of autopsies for February, by Dr. Olga C. Leary. 3. Acute Hemorrhagic Nephritis in Children. Report of a recent case. Discussion by Dr. Green in its relation to pediatrics; by Dr. Kleinert in its relation to sinusitis, by Dr. Andrews in comparison with the same disease in adults.

ALICE H. BIGELOW, M.D., *Secretary.*

THIRD CONGRESS OF THE PAN AMERICAN MEDICAL ASSOCIATION

July 26-31, 1931
Mexico City, Mexico

The Organization Committee of the Third Congress of the Pan American Medical Association has issued

a cordial invitation to those who are interested in medical interchange among English, Spanish, French and Portuguese speaking doctors of Pan America for the next meeting which will be held at the City of Mexico from the 26th to the 31st of July 1931, under the auspices of the Government of the Republic of Mexico.

This medical conference meets for the purpose of maintaining and promoting a more intimate understanding between the medical men of the New World, and with the efforts of many prominent North and Latin American Physicians, great success has been accomplished in the past meetings.

Information can be obtained from:

Dr. Francisco de P. Miranda, Executive Secretary of the Organization Committee. Departamento de Salubridad Publica, Mexico City, Mexico.

Dr. Conrad Berens, Treasurer Pan American Medical Association, 35 E. 70th Street, New York, N. Y.

Dr. José E. Lopez-Silvero, Executive Secretary of the Pan American Medical Association, Secretaria de Sanidad y Beneficencia, Habana, Cuba.

MASSACHUSETTS PSYCHIATRIC SOCIETY

A meeting of the Massachusetts Psychiatric Society was held at the Boston Psychopathic Hospital February 25, 1931. Abstracts of the papers follow: "A Study of Twenty-five Children with Shut-in Personalities," Samuel W. Hartwell, M.D., Worcester State Hospital.

This was a study based on twenty-five cases of children (20 boys, 5 girls) ranging in age from 11 to 18. All exhibited the "shut-in" inaccessible type of response. Five had been committed to state hospitals and commitment was seriously considered for eleven others when they were first studied. All have been under observation and treatment in the Worcester Child Guidance Clinic for periods between 8 and 20 months.

The first part of the paper, presented in abstract, deals with a study of family backgrounds, personal history, physical condition, and emotional experiences of the children, tables of these findings and analysis of the same.

The paper embodied a discussion of mental mechanisms active at the time of first withdrawal, a division of the cases into three clinical groups based on these mechanisms which seem to have a definite correlation with the difficulty of establishing rapport and carrying out successful treatment; but not to correlate with the severity of the symptoms.

Methods used in treatment of these cases are given. An attempt was made in every case to establish deep rapport, the clinical importance of this being stressed, including removing of inhibitions and liquidation of fears, feeling of failure, rejection and guilt and making the child believe he is understood and appreciated. The child's reaction to the giving of confidences which he does not feel create a response of amusement, rejection, disgust or misunderstanding. The psychiatrist attempts to interpret life to the child, and the child to his environment.

The present conditions of those children, all of whom are still under observation and treatment, was summarized. Eight have apparently recovered, six have made decided changes for the better and are continuing to do so. Five have improved somewhat. Two have regressed after temporary improvement, and four have in no way responded to treatment.

An attempt to analyze the mechanisms of these changes was made.

"Diathermy in the Treatment of Dementia Paralytica," Clifton T. Perkins, M.D., Worcester State Hospital.

Summary—The paper read, and illustrated by lantern slides, before the Massachusetts Psychiatric Society at the Boston Psychopathic Hospital on Wednesday, February 25, dealt with the diathermy treatment for dementia paralytica. It embodied a brief survey of the evolution of treatment for dementia paralytica up to the present day and a detailed description of the technique and research protocol for diathermy treatment as now used at the Worcester State Hospital. The advantages, contraindications, cautions, complications, and results relative to this treatment to date were briefly enumerated. The speaker refused to draw any definite conclusions relative to the treatment, due to the comparatively short series of cases to date, but offered such data as had been correlated merely to show the general trend of the diathermy treatment as applied to dementia paralytica.

WINFRED OVERHOLSER, M.D., *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

March 16-30—Lectures on Keeping Mentally Fit. Given under the auspices of the Massachusetts Division of University Extension and the Massachusetts Society for Mental Hygiene. Boston.
Lectures, in the Gardner Auditorium, State House, Boston, Monday evenings.
Course Leader: Dr. Henry B. Elkind, Medical Director, Massachusetts Society for Mental Hygiene.

March 16—Emotion and Intellect in Adult Life. William B. Terhune, M.D., Austen Riggs Foundation, Stockbridge.

March 23—Normal and Abnormal Fear. Abraham Myerson, M.D., Professor of Neurology, Tufts College Medical School.

March 30—"Nerves"; Their Meaning in Our Lives. E. van Norman Emery, M.D., Medical Director, Connecticut Society for Mental Hygiene.

March 13—The William Harvey Society at the Beth Israel Hospital. See page 471, issue of February 26.

March 16—Boston Medical History Club. See page 577.

March 17—South End Medical Club. See page 525, issue of March 5.

March 17—Greater Boston Medical Society. See page 577.

March 18—New England Physical Therapy Society. See page 577.

March 19—Medical Clinic at the Peter Bent Brigham Hospital. See page 575.

March 19—The Clinico-Pathological Conference of the New England Hospital for Women and Children. See page 577.

March 20—The New England Roentgen Ray Society. See page 577.

March 23-27—Fifteenth Annual Clinical Session of the American College of Physicians. See page 240, issue of January 29.

March 27—Belmont Medical Society. See page 577.

April 1-June 3—Cardiac Course. See page 854, issue of October 23, 1930.

April 10—The William Harvey Society. See page 471, issue of February 26.

May 11-14—Meeting of the National Tuberculosis Association at Syracuse. See page 1310, issue of December 25.

June 8-14—International Hospital Congress. See page 521, issue of March 5.

July 6-11—Medical Clinic, Paris. See page 520, issue of March 5.

July 26-31—Third Congress of the Pan American Medical Association. See page 577.

July 27-31—Third International Congress of Radiology, Paris. Complete notice appears on page 385, issue of August 21.

September 14-17—The American Public Health Association. See page 525, issue of March 5.

DISTRICT MEDICAL SOCIETIES

Bristol North District Medical Society

April 16—Taunton Woman's Club.

September 17.

Essex North District Medical Society

The next meeting will be held at the Amesbury Country Club early in May.

Essex South District Medical Society

Thursday, May 7—Censors meet at Salem Hospital at 3:30 P. M.

Tuesday, May 12—Annual Meeting. The Tavern, Gloucester. Speaker: Dr. Morris Fishbein, Editor of the A. M. A. Journal of Chicago. Subject: "History of Medical Cults." Ladies invited.

Franklin District Medical Society

May—The meeting will be held on the second Tuesday of May at 11 A. M. at the Weldon Hotel, Greenfield.

Middlesex East District Medical Society

May 13—At Wakefield.

Norfolk District Medical Society

March 31—Dr. Arthur W. Allen. Subject to be announced (will deal with circulatory diseases). Hotel Kenmore, 8 P. M.

May—Annual Meeting. Date and details to be announced.

May 7—Censors' Meeting for examination of candidates at 171 Warren Street, Roxbury, 4 P. M. Candidates from schools on accepted list will forward application with certificate of graduation to the secretary at least one week prior to date of examination. Candidates from schools not on accepted list who have been in practice five years will forward applications together with five letters of recommendation from members in good standing in the Massachusetts Medical Society to Dr. P. P. Johnson, Cabot Street, Beverly, Mass., two weeks prior to date of examination. Fee for all candidates $10.00.

FRANK S. CRUICKSHANK, Secretary.

Norfolk South District Medical Society

Spring meetings are as follows:
April 2, May 7.
All meetings begin at 12 noon. Meetings will be held at the Norfolk County Hospital, South Braintree.

The censors will meet on May 7 at 11:30 A. M. at the Norfolk County Hospital, South Braintree.

NATHAN R. PILLSBURY, Secretary.

Suffolk District Medical Society

March 25-April 29—Combined meetings with the Boston Medical Library. These meetings will be held as specified below on Wednesdays, at 8:15 P. M.

March 25—Clinical Program, Beth Israel Hospital.

April 29—Annual Meeting. Election of Officers. Boston Medical Library.

The medical profession is cordially invited to attend all of these meetings.

GEORGE S. DERBY, M.D.,
President, Suffolk District Medical Society.
LELAND S. McKITTRICK, M.D.,
Secretary, Suffolk District Medical Society.
HILBERT F. DAY, M.D.,
Boston Medical Library.

BOOK REVIEWS

Physics of Radiology. By J. L. WEATHERWAX. PAUL B. HOEBER, Inc. New York. 440 pages. Price $5.00.

This excellent little book of 440 pages and 126 illustrations presents the physics of radium and radiation therapy in a language which should be easily understood by the average physician, as stated in the foreword by Dr. Henry K. Pancoast: "This treatise is intended primarily as a textbook for students, and it has been compiled for the purpose of supplying the essential knowledge without compelling them to delve too deeply into the study of general physics and electrical engineering. It serves the additional purpose, however, of keeping the older radiologist well informed and permitting him to refer readily to any points he may have forgotten or problems he may not thoroughly understand."

Dr. Weatherwax has had an unusual opportunity as a physicist, intimately associated with the clinical side of radiation therapy, his experience had enabled him to present the problems connected with irradiation, from the point of view, not only of the physicist, but also of the physician.

In addition to the usual chapters on the apparatus for the production of x-ray and radium emanation there is an excellent chapter on the various instruments in use for the measuring of x-ray dosage. The use of anatomical charts in determining the depth dosage is also described, and their errors as well as their advantages discussed.

The so-called saturation method of treatment, recently developed by Pfahler is described in detail. Scattered through the book are many excellent charts and tables conveniently arranged for reference. There is a good chapter on the application of radium in its various forms and dosage.

The book contains a few typographical errors and misplaced captions but no more than would be expected in a first edition. It is an excellent book for all those who wish to understand the physics of irradiation, and for use as a laboratory manual.

Ante-Natal Care. By W. F. T. HAULTAIN and E. CHALMERS FAHMY, both assistant physicians in the Ante-Natal Department of the Edinburgh Royal Maternity Hospital. Cloth. Pp. 127. New York: William Wood & Company. Second Edition, 1931. Price $2.25.

Two active teachers have condensed into little more than one hundred pages the whole practice of clinical obstetrics, adding, for good measure a few simple surgical procedures, as well as a description of such administrative details of a pre-natal clinic, as furnishings, records, personnel, and routine. There is even included a very good chapter on the diagnosis and treatment of venereal diseases. The book is meant to supply the wants of general practitioners, postgraduates, and students attending courses in their hospitals. In the space taken, the authors have done an exceedingly able job. For the busy general practitioners and for the student, the book affords easy acquisition of correct essentials. As would be expected many methods of examination and treatment differ from those in vogue in this country. When there appears to be error it is usually on the side of conservatism—a virtuous fault. This is a solid little volume, worth its price.

Practical Radiation Therapy. By IRA I. KAPLAN, B.S., M.D., Director, Division of Cancer, Department of Hospitals, New York City; Attending Radiation Therapist, Bellevue Hospital: with a special chapter on *Applied X-Ray Physics* by CARL B. BRAESTRUP, B.Sc., P.E., Radiation Physicist, Division of Cancer, Department of Hospitals, Physicist to Mt. Sinai Hospital, New York City. 354 pages with 227 illustrations. Philadelphia and London: W. B. Saunders Company, 1931. Cloth, $6.00.

The first third of the book is devoted to a discussion of the various types of x-ray generators, the preparation of radium, and the physical properties of both x-ray and radium. Several useful tables for the measurement of x-ray and radium dosages are included, and those physical principles which it is essential for the radiotherapist to master, are clearly and concisely stated.

There next follows a section devoted chiefly to the treatment of superficial and deep malignant conditions, with the inclusion of a few of the more common non-malignant diseases which are amenable to irradiation. There are many excellent illustrations of cases before and after treatment with accompanying notes stating the exact dosages of x-ray and radium employed. The radium treatment is carried out according to methods elaborated by Regaud. Instead of using intensive, massive doses which require large amounts of radium, small amounts of heavily filtered radium are applied over periods of several days. A knowledge of this procedure will be of especial value to individuals possessing a limited supply of radium element.

The book is concluded by brief chapters on endothermy, the nursing care of patients with malignant conditions, the plan and scope of a unit radiation therapy department for a general hospital, and accidents and radiation burns.

The technique of radiation therapy is far from standardized, and in any textbook on this subject there are certain to be points on which a difference of opinion exists. The x-ray dosages which we employ in the treatment of malignant disease are in general about three times as large as those recommended by Kaplan. One obtains the impression in reading this book that much the same x-ray dosage is given to all cases of malignancy. This is a mistake in that there is a great variation in the radiosensitivity of different types of new growths.

Although excellent results may be obtained by Regaud's method of radium treatment, much is to be said in favor of the more intensive type of treatment which generally means shorter hospitalization for the patient and often less discomfort during the radium application. In the hands of competent workers the results of the treatment of cancer of the cervix are remarkably uniform regardless of whether the radium dosage is delivered over a period of several hours or several days.

In the organization of a hospital clinic for the treatment of malignant disease Kaplan does not recommend the installation of a radium emanation plant. We feel that radium emanation is indispensable in many cases, and that an emanation plant is desirable if large numbers of radium treatments are to be economically carried out.

The Guidance of Mental Growth in Infant and Child. By ARNOLD GESELL. Published by the Macmillan Company. Price $2.25.

This volume is made up of a collection of papers read before various groups. It expounds in simple terms the attitude of the author towards the problems of infants and young children. Readers who regarded Dr. Gesell's previous volumes as rather formidable need have no fear of this one. Those familiar with his more serious work may find this book useful as an introduction for neophytes in the subject.

The Antiquity of Hindu Medicine and Civilisation. By D. CHOWRY MUTHU, M.D., M.R.C.S., L.R.C.P. 3rd ed. enlarged. Paul B. Hoeber, Inc., New York, 1931. 112 pages. Price, $1.50.

Recent studies in archaeology point to the fact that the civilisation of India is much older than was formerly thought. Investigations by Sir John Marshall have discovered many buried cities which existed at least 7000-9000 B.C. By excavating these ruins he has found signs of well-marked civilisation, with houses and shops, supplied with their own wells, bathrooms and drains.

That medicine must have existed under such circumstances is the theme of this book. There is little direct evidence, as yet, to present. The two outstanding medical men of India, Charaka and Susruta, were of a later period. Muthu's little book summarizes all our knowledge, however, of Hindu medicine, as well as giving a general survey of early Indian civilisation.

L'Hydrotherapie Medicale. (Les Actualites Physiotherapiques, Hydrotherapie VI.) By R. DUBOIS DE SAUJON. Gauthier-Villars Et Cie, Éditeurs. Paris. Pages 129. Price 15 fr.

This small booklet emphasizes again that Europeans probably overuse hydrotherapy and we in this country underuse it as a therapeutic aid. It is amazing to note the multitude of conditions which are amenable to hydrotherapy.

This book presents nothing new, but is a handy pocket size and is an excellent compend for general use.

Études Neurologiques. Par GEORGES GUILLAIN et TH. ALAJOUANINE. 4th Series. Paris: Masson et Cie, 1930. 358 pages. Price, 65 francs.

This is the second large volume of papers to be received from the Neurological Clinic of the famous Paris hospital, La Salpêtrière, in the last year. The director of this clinic, Georges Guillain, is well known in this country for his sound neurological observations. The volume consists of collected reprints

published in the last year or two, and it is of distinct value to all neurologists to have these papers in such a convenient form. The type of work done at this well known institution needs no special comment as this hospital has long been one of the great centers for neurological investigation in the world. The previous volume of this series was reviewed in the *New England Journal of Medicine*, January 9, 1930.

The Practical Medicine Series—General Medicine. Series 1930. Edited by GEORGE H. WEAVER, LAWRASON BROWN, GEORGE R. MINOT, WILLIAM B. CASTLE, WILLIAM D. STRAND and RALPH C. BROWN. Chicago. The Year Book Publishers. 848 Pages. Price $3.00.

The present volume, in the reviewer's opinion, marks a distinct advance over the corresponding volumes of previous years. It may be that the past year has been more productive of items of interest, as represented by the increased attention to psittacosis, undulant fever and tularemia with which the book opens and the gaining recognition of the use of surgical procedures in the treatment of pulmonary tuberculosis. Even if this is true, however, it must be said that the material selected has been chosen with excellent judgment. In particular, there are fewer mentions of diagnostic and therapeutic measures not adapted to widespread application; a much larger proportion of the many paragraphs which compose the book deal with subjects which the practitioner of internal medicine may well consider for their bearings upon his own practice. All in all, this issue of the Series has attained a considerable degree of success in reflecting the year's progress in medicine.

Medical and Surgical Reports of the Episcopal Hospital. From The Protestant Episcopal Church in Philadelphia. Press of Wm. J. Doran, Philadelphia. Vol. VI. Pages 460.

This is a commemorative volume in recognition of the seventy-fifth year of the hospital's existence. It contains articles of various vintages but should prove of especial interest and value to all who have been connected with the Episcopal Hospital. Also, some new articles are included in this volume.

The contents exhibit marked diversification of subjects and indicate the activities of the hospital very well.

Thomas Say, Early American Naturalist. By HARRY B. WEISS and GRACE M. ZIEGLER. Charles C. Thomas, Publisher. Springfield, Illinois and Baltimore, Maryland, 1931. xiv + 260 pages. Price, $5.00.

The subject of this biography was not a medical man, but his name is known all over the world, wherever natural history is studied. Born in 1787, in Philadelphia, Say began studying and collecting early in his life and in 1812 was one of the founders of the Philadelphia Academy of Natural Sciences. Although a poor boy himself, he became the protégé of a wealthy Scotch-American, William Maclure, who sent him to Florida and Mexico in search of zoölogical material. Say also accompanied Major S. H. Long on trips to the Rocky Mountains in 1819 and 1823. On the first expedition Say's friend, William Baldwin, M.D., died shortly after the expedition had started. In later life Say joined the communistic group at New Harmony, Indiana, under Robert Owen, and there married, at the age of forty. He died in 1834, at the early age of forty-seven. He has rightfully been called "the Father of American Entomology". His book on the subject, first published in 1824, had a far-reaching influence. His present biographers have collected many facts about Say never before known and they have given a competent picture of him. There is an appreciative foreword by Dr. L. O. Howard, Chief of the Bureau of Entomology, United States Department of Agriculture.

A Primer for Diabetic Patients. By RUSSELL M. WILDER, M.D., Professor and Chairman of the Department of Medicine, University of Chicago Clinics; Formerly Head of the Section on Nutrition, Division of Medicine, Mayo Clinic. Fourth Edition, Revised. 138 pages. Philadelphia and London; W. B. Saunders Company, 1930. Cloth, $1.50.

The printing of a fourth edition of this excellent little manual indicates the increasing use of such means of instruction for patients. The usual sections on definition of diabetes, laboratory tests, diets, insulin, complications, acidosis, and recipes are included. Dr. Ureder apparently still adheres in most cases to a diet of protein 50 grams, and total glucose of 120 grams. This gives, when using the Boothby and Sandejoid diabetic diet chart approximately 70 grams carbohydrate and a relatively high fat diet. At a time when so many students of diabetes are turning toward a diet with relative proportions more nearly normal, this teaching seems to take little account of present-day tendencies.

The dietary instructions and food tables are useful. The book is of convenient size and well printed.

The Factor of Infection in the Rheumatic State. By ALVIN F. COBURN, M.D. The Williams & Wilkins Co., Baltimore. 288 Pages. Price $6.00.

The author has taken popular legend and has made a scientific study of it. This well-known legend is that certain types of infection acquired in the temperate zone clear up more quickly when such patients sojourn to the tropics and vice versa. Dr. Coburn presents very careful observations and places this accepted tradition on a firmer basis.

The author believes that upper respiratory tract infections are the chief important precursors of the rheumatic state, also, that the streptococcus is the main agent.

This book is well worth while and whereas nothing new is presented it does prove that the clinical observation can be scientific and valuable. It is also a striking study in contrast if compared to a number of the recent works on arthritis which are usually individual interpretation and not scientific fact. For this reason Dr. Coburn's account may be used as a guide for the many individualists to follow when presenting their general ideas of arthritis.

Modern Surgery. By JOHN CHALMERS DACOSTA, M.D. Assisted by Benjamin Lipshutz. Tenth Edition. Published by W. B. Saunders Co. Price $10.00.

To one engaged in teaching, to medical students, general principles and practice of surgery, is often put the question, "What textbook on surgery would you recommend my purchasing?" This has been a difficult question to answer because of the rapid progress in development of new surgical technique and frequent changes in the terminology and conception of disease by pathologists. Newer methods of treatment, some better and some uncertain, are constantly being evolved. To keep up with it all seems well-nigh impossible. Most of us rely on our weekly and monthly journals for the information we seek, and our more mature judgment enables us to sift the material and evaluate its worth with some success. Publishers have tried to produce up-to-the-minute surgical works by the loose-leaf, multiple volume method. This is an expensive luxury for many students, and there is real need for a comprehensive single volume.

In looking over the tenth edition of DaCosta's "Modern Surgery", I was prepared for disappointment, but found, on the contrary, that this edition has been revised up to the minute. Frequent references to the late publications of acknowledged authorities are made, and Dr. DaCosta intersperses his own comments in an effort to clarify in the reader's mind the ideas set forth. Picking, at random, chapters on the breast, rectum, carotid gland, fractures, etc., I find them all brought up to date. One is impressed by the writer's modesty in expressing his own ideas, his avoidance of dogmatic opinions, and his wisdom in quoting so liberally from the world's foremost writers. The book is amply illustrated, well printed and bound. Originally published in 1894, this work has undergone nine revisions and thirty additional reprintings. What greater evidence of its value to the profession could one find?

Chronic Arthritis and Rheumatoid Affections with Recovery Records. By BERNARD LANGDON WYATT, M.D., F.A.C.P., with the collaboration of Louis I. Dublin and foreword by Dr. J. Van Breemen. William H. Wood & Co., New York. Price $2.50.

This book like every other book on arthritis, published during the past ten years, presents nothing new. The causes of arthritis are as vague and disputable as ever. Treatment remains largely an individual interpretation.

Some of the observations are interesting, stimulating and encouraging. The value of sunlight therapy is emphasized, especially the sunlight of Southern Arizona.

Dr. Wyatt stresses increased exercise of affected joints, also shorter rest immobilization in bed. Nissen's exercise and massage routine are presented in simple workable fashion. Dietary outlines are well-arranged and followed easily. The value of orthopedic measures is placed in its correct relationship in the treatment of arthritic deformities, i.e., as one adjunct in the therapy of arthritis.

This book is worth while in so far as it is a good summary of what is known about arthritis to date.

As usual the personal factor is the dominant one and until more is known definitely the arthritis problem will remain an individual one.

Annals of the Pickett-Thomson Research Laboratory. Vol. VI. The Rôle of the Streptococci in Scarlet Fever. (The Pathogenic Streptococci.) Published by Baillière, Tindall & Cox, England; Williams and Wilkins Co., Baltimore, Md. Pages 470.

This is another example of the careful, thorough bacteriological work being done by this laboratory. Fifteen different correlated proofs point to the cause of scarlet fever as being a definite specific variety of hemolytic streptococcus.

These studies are worth the careful consideration of all physicians as an example of how and what is involved to establish facts. There is an excellent reference list. It is up to date.

BOOKS RECEIVED FOR REVIEW

Certified Milk Conferences held in 1930. 354 Pages.

A Text-Book of Medical Jurisprudence and Toxicology by John Glaister in collaboration with John Glaister, Jun. Fifth Edition. Published by William Wood & Company and E. & S. Livingstone. 954 Pages. Price $8.50.

Modern Methods of Treatment by Logan Clendening. With chapters on Special Subjects by H. C. Andersson, J. B. Cowherd, H. P. Kuhn, Carl O. Rickter, F. C. Neff, E. H. Skinner and E. R. DeWeese. Fourth Edition. Published by The C. V. Mosby Company. 819 Pages. Price $10.00.

Chinin in Der Allgemeinpraxis by Dr. Med. Fritz Johannessohn. Published by the Bureau for Increasing the Use of Quinine, Amsterdam. 232 Pages.

Das gynäkologische Seminar by Dr. Wilhelm Liepmann. Published by Urban & Schwarzenberg. 368 Pages.

Les Diagnostics Anatomo-Cliniques de Paul Lecène. 1. Généralités by P. Pavie. Lésions du Sein by P. Moulonguet. Published by Masson et Cie, Éditeurs. 189 Pages. Price 45 fr.

An Introduction to Practical Bacteriology by T. J. Mackie and J. E. McCartney. Third Edition. Published by William Wood & Company and E. & S. Livingstone. 421 Pages. Price $3.50.

Lovett's Lateral Curvature of the Spine and Round Shoulders. Fifth Edition revised and edited by Frank R. Ober and A. H. Brewster. Published by P. Blakiston's Son & Co., Inc. 240 Pages. Price $3.50.

A Handbook on Diseases of Children including Dietetics and the Common Fevers by Bruce Williamson. Published by William Wood & Company and E. & S. Livingstone. 290 Pages. Price $3.50.

Talks on Tuberculosis by John B. Hawes, 2nd. Published by Houghton Mifflin Company. 179 Pages. Price $2.00.